

One Health Comments from Prominent Romanian Comparative Medicine Professor

Provided February 9, 2015 to the One Health Initiative Autonomous *pro bono* team for posting in the One Health Initiative website:

The information that is to be presented below represents the fruit of professional commitment of over 50 years, a time in which Romania has developed the concept of "comparative medicine", a concept that has, much to our joy, roughly the same foundation and pillars as the "One Health" concept.

Firstly, one of the fundamental factors underlying the "One Health" concept is provided by the entire scaffolding of activities comprised in the discipline of "Comparative Medicine", that focuses on the following specialties:

- Anthroozoonoses;
- Comparative oncology;
- Environmental medicine;
- Food safety – both of animal and of non-animal origin

Secondly, in Romania, the first notions of "Comparative Medicine" were brought forth as early as the 19th century by the scientist Victor Babeş, to be subsequently followed by new developments in the 20th century. Thus, in the 1930s, the subject was addressed in the doctoral thesis of Academician Radu Codreanu, defended at The Sorbonne University in Paris, followed, in 1968, by the advent of Comparative Oncology Research, owing to Professor Octav Costachel from The Institute of Oncology in Bucharest and to Doctor Nicolae Manolescu from The Faculty of Veterinary Medicine in Bucharest and reaching a climax, in 1999, with the establishment, by Government decision, of The Romanian Institute of Comparative Medicine, at the initiative of University Professor Doctor Nicolae Manolescu.

Within The Institute of Comparative Medicine, The Comparative Oncology Department has played an all-important role. In Romania, the Comparative Oncology, has initially functioned as two independent departments within The Institute of Oncology in Bucharest and The Faculty of Veterinary Medicine in Bucharest, respectively. These activities have later been forgathered within The Romanian Society of Comparative Oncology. In 2009, The Mediterranean Forum of Comparative Oncology was set up in Genoa, with University Professor Doctor Nicolae Manolescu elected as senior vice president for a seven-year period. On this occasion, a proposal came forward, namely that the Mediterranean Forum of Comparative Oncology should be represented by a branch office in Romania. Consequently, The National Forum of Comparative Oncology was established, by court order, in 2010. On the very same date, the structure named The Romanian Society of Comparative Oncology ceased its activity. From 1999 on, the "International Journal of Comparative Oncology" has been released in Romania (twice a year, in the English language), with an international board of distinguished personalities from the medical world.

Against this outstanding background, The Romanian Academy of Medical Sciences, paid due homage to the exceptional activity of "One Health", when it established (under statute), the department of "Comparative Medicine", that deals with both human and veterinary medicine.

Romania has set in motion an important activity for the practical implementation of this novel, extremely useful, and important medical concept: "One Health". We hereby provide you some data about this comprehensive work:

1. The establishment, during the academic year 2014-2015, of The Post-Graduate School of "Comparative Medicine", within The Faculty of Veterinary Medicine in Bucharest, Romania. This school will train future European specialists to implement the new "One Health" concept.
2. The foundation of the Center for Scientific Research named "The *One Health* Implementation Project" within The University of Agronomic Sciences and Veterinary Medicine, "King Mihai I", in Timisoara, Romania, in collaboration with The Romanian Academy of Medical Sciences; the headquarter is a newly build facility covering over 10,000 square meters and benefits from the latest equipment in the field. This center will train both students and PhD students within the doctoral and post-doctoral schools it hosts. Moreover, a series of projects, meant to support the training of elite specialists for the "One Health" concept, are expected to emerge from this very center.
3. The establishment of a center of "Comparative Medicine", specialized in anthroozoonoses, within the "Victor Babes" Hospital for Infectious and Tropical Diseases, in Bucharest, Romania, in collaboration with The Romanian Academy of Medical Sciences. The mission of this center is a close cooperation with FAO, WHO, OIE, for "input", and with The Romanian Ministry of Health and The National Sanitary-Veterinary and Food Safety Authority in Romania, for "output". This center is exclusively designed as a monitoring and warning mechanism, on a daily basis, for the evolution of worldwide as well as Romanian anthroozoonoses. It is also going to collaborate with the all bordering countries of Romania.
4. Under the aegis of the "One Health" concept, we have achieved a widespread development of the trilateral relationships among Romania, Italy, and France, by organizing, on 19th to 20th May 2014, "The Italian-Romanian Days of Comparative Oncology", an event honoured by the presence of the former President of The French Academy of Medicine, Professor Emeritus André-Laurent Parodi. In addition, an international consortium of researchers in the field of comparative oncology has been set up, with the participation of specialists from Romania, Italy, France and Spain.

The implementation of this new "One Health" medical concept into the large medical practice involves not only a great volume of work but also specialists in comparative medicine able to coordinate this initiative. Romania, with its rich experience in this field of expertise, as can be seen from the present report, is available at any moment for collaboration, in case your organization requires our participation.

We hereby attach the list of the research projects to be developed by the Scientific Research Center "Project for the Implementation of the *One Health* Concept", in Timisoara, between 2015 and 2020:

1. "THE STUDY OF CROSS-BORDER ZOOSES"

Director: University Professor Doctor Gheorghe Darabus, prorector of The University of Agronomic Sciences and Veterinary Medicine in Timisoara

2. "THE STUDY OF THE ZOOSES THAT DETERMINE THE FOREMOST SOCIAL AND ECONOMICAL IMPACT"

Director: University Professor Doctor Doina Danes, the University of Agronomic Sciences and Veterinary Medicine in Bucharest

3. **"THE STUDY OF THE TUMOR STEM CELLS FROM THE MALIGNANT HUMAN LYMPHOMA IN COMPARISON TO THE TUMOR STEM CELLS FROM CANINE MALIGNANT LYMPHOMA"**

Director: University Professor Doctor Tullio Florio, the University of Genoa, Italy

4. **"THE STUDY OF DEUTERIUM DEPLETED WATER 60 PPM AS A THERAPEUTIC AGENT IN THE CORRECTION OF HUMAN INFERTILITY"**

Director: University Professor Doctor Nicolae Suci, the University of Medicine and Pharmacy Carol Davila in Bucharest

5. **"RESEARCHES ON THE ACTION OF HYDROGEN ISOTOPES FROM THE ENVIRONMENT, WATER AND FOODS ON THE GENE ACTIVITIES AND OF THEIR SYNTHESIS PRODUCT IN "GENETIC MODEL ORGANISMS AND IN HUMANS"**

Director: University Professor Doctor Galia Butnaru, the University of Agronomic Sciences and Veterinary Medicine in Timisoara

The Organization and the Development of Comparative Oncology in Romania

In Romania, the Comparative Oncology has passed through two distinct and relatively apart phases.

The first period, the debut one, is due to the merit of Academician University Professor Doctor Radu Codreanu, who defended his doctoral thesis in biology, entitled "The Leukemia of Ephemeroid-like insects" at The Sorbonne University in Paris, in the 1930s.

About thirty years were to elapse between the first and the second period of the comparative oncology, brought forth, as its modern period, by University Professor Doctor Octav Costachel and Doctor Nicolae Manolescu, in 1968.

During this new period, research was simultaneously conducted at The Institute of Oncology and The Faculty of Veterinary Medicine, both in Bucharest. Between 1968 and 2014, that is to say, for 46 six years, the Comparative Oncology has developed in several ways. Among these, mention should be made of the following noteworthy activities:

1. The inauguration of a particularly powerful medical centre in Cluj-Napoca, under the initial coordination of University Professor Doctor Ioan Chiricuta, the manager of The Institute of Oncology in Cluj-Napoca and of University Professors Doctor Ioan Adamesteanu and Doctor Constanta Adamesteanu, from The Faculty of Veterinary Medicine in Cluj-Napoca. Later on, the management was taken over by the rector of The University of Medicine and Pharmacy in Cluj-Napoca, Iuliu Hateganu, by University Professor Doctor Alexandru Irimie and by University Professor Doctor Alexandru Ioan Baba. Subsequently, a new board member was added, namely University Professor Doctor Cornel Catoi, from the The Faculty of Veterinary Medicine in Cluj-Napoca.
2. The founding, in 1991, of The Romanian Society of Comparative Oncology, which, from 2010 onwards, has turned into The National Forum of

Comparative Oncology, with the corresponding member of The Romanian Academy, Academician Nicolae Manolescu, University Professor Emeritus Honoris Causa, Doctor Honoris Causa, elected as president.

3. The editing, from 1999 on, the "International Journal of Comparative Oncology" in English, twice a year.
4. The organization of over 20 national and international scientific meetings, between 1981 and 2014.
5. The contribution to the introduction, in 1992, of the discipline "Comparative Oncology" within the veterinary medicine university education, and of the specialization "Veterinary Oncology" at doctoral level.
6. The publication of 4 treaties of comparative oncology.
7. The initiative of setting up, together with specialists in comparative oncology of "The Mediterranean Forum of Comparative Oncology", with its headquarters in Genoa, Italy.
8. The introduction in COR (Classification of Occupations in Romania) of the profession of "Veterinary Doctor Specialist in Comparative Oncology".
9. The organizing, on 19th to 20th May 2014, of "The Italian- Romanian Days of Comparative Oncology", an international meeting with the participation of about 100 specialists from Italy, France and Romania.

Under these specific circumstances in Romania, we wanted, on the one hand, to bring together, in a whole, the "oncological phenomenon", at the zoological scale, from insects to humans, and, on the other hand, to provide human oncology all relevant information from the entire living environment, including the specific biotic and abiotic onco-active one.

The means used to achieve this asserted goal are related to the usage of the:

- comparative epidemiology data;
- evolution of the cancer disease data in the eco-system frame;
- anatomical and clinical data;
- chemical and bio-chemical analysis data;
- therapeutic response data;
- genomic and molecular information.

All these data, collected on a permanent basis, enable the editing of The National Registry and, subsequently, of The National Registry of Animal Oncological Diseases.

The Comparative Oncology is the science of cancerous disease in all the existing components of the ambient living environment. Therefore, we can already discuss of the spatialization and globalization of the cancer disease. In the comparative oncology program, it falls in three well individualized niches:

- the dispensary, the hospital, the clinic or the human and veterinary oncological institute;
- laboratories of experimental oncology;

- environmental activities (living environment) that comprise the detection, the analysis and the monitoring of the main pro-oncological biotic and abiotic agents, in order to classify them and establish their rating.

These activities are carried out at ground level (including air level), at groundwater level and flowing fresh/marine water level, including aquatic animals and plants. The above-mentioned investigations are also carried on farm animals (meat - milk) as well as their industrial processing. The resulting data will be compared with the standard ones, provided as accepted levels through European Union directives. Hereby, they will decisively contribute to the defence of human health.

Both meat and meat products derived from downed animals which are the object of organized hunting trips will fall under the same category of surveillance and analysis.

Within all the above-mentioned environmental components, the specific analyses, aimed at identifying the biotic and abiotic cancer inducing agents, take into account a whole series of factors. Among these, special mention should be made of:

- A) Conducting the comparative epidemiological investigation;
- B) Animal and human anatomical-clinical investigations;
- C) Virological analyses;
- D) Analytical physicochemical and biochemical analyses;
- E) Molecular and genomic analyses;
- F) Identifying the implication of the bacteria of the genus *Campylobacter* in oncology;
- G) Establishing some potential etiological relationships between oncology and parasitology.

On the basis of these ample analyses, that can be conducted both in a restricted living environment and in a very large one, our intention is to achieve the following:

- meat and milk, including processed food products of animal origin, free of the main cancer inducing agents;
- non-animal food products, also free of the main cancer inducing agents.
- drinking water, irrespective of the source, also free of the main cancer inducing agents.

All these can only be achieved in the context we have initiated, namely to bring into the living environment the specific elements of eco-onco-prophylaxis and eco-onco-therapy.

I sincerely hope that this year brings forth the possibility of us meeting, in order to directly discuss our joint problems. I also hope that 2015 will bring to you health and prosperity.

Yours truly,

Nicolae Manolescu, PhD

<http://www.onehealthinitiative.com/publications/Nicolae%20Manolescu%20-%20CV-%20One%20Health%20Initiative.pdf>

Univ. Prof. emeritus h.c. Dr. h.c.

Member of the Romanian Academy

Member of the National Academy of Medicine of France

Member of the Romanian Academy of Medical Sciences