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ONE HEALTH
NEW MEDICAL
CONCEPT
ROMANIA

FINAL REPORT

of the

2nd European ONE HEALTH Conference

21 – 22 June 2019

Venue: *Spiru Haret* University, 24 Berceni Sos.,
Bucharest, Romania



Under High Patronage of the Romanian Government

I. PREAMBLE

Worldwide, the remarkable progress of healthcare coupled with better living conditions are continually leading to the increase in human life expectancy almost everywhere.

In contrast with this positive development, human health disorders are increasing in volume, they are diversifying and they are becoming more and more challenging to health. More and more diseases with uncontrolled developments and super-adaptable bacteria resistant to antibiotics are determined by:

- accelerated climate change;
- population movements as a result of globalization and military conflicts,
- population growth, insufficient precaution in using some harmful technologies;
- unhealthy diet and excessive medication.

It goes without saying that the costs and efforts to preserve an appropriate health condition are continually increasing and consuming huge resources, hard to sustain.

Within this framework, the *One-health* global concept, which involves the synergy of human, animal, plant and environmental health, has been introduced for the past 3-4 years by the major international institutions such as UN, WHO, FAO, OIE, and others. As well as by the European ones headed by the EU Commission as an operative tool against the great challenges to health.

Now more than ever, local and global institutions and decision makers have to consider life as a priority, while the economic and social development must be undertaken in such a way as to ensure a sustainable and comfortable life, but within the limits of the available resources.

II. REGULATION, COHERENCE AND SUPPORT AT LOCAL, REGIONAL AND GLOBAL LEVEL

The promotion and effective implementation of the One Health Concept requires major action plans in three areas: Regulation, Coherence and Support

1. REGULATION

The development of appropriate standards and the setting up of regulatory bodies and authorities

a) Formalizing the Concept. Domains of application and means of action

Reference is made to the definition and domains advanced in 2008 by *One Health* Commission USA and generally accepted and completed with valences as proposed by Sweden, the Netherlands, and Romania.

In Romania, a Draft Law of *One Health* is currently submitted for debate to the Parliament.

b) Certification of the *One Health* sub-specialty in agreement with the position specialists in infectious diseases, epidemiology, veterinary medicine and other areas and its inclusion in the nomenclature of occupations.

Within the context of increasingly aggressive pathological conditions and emerging threats, it could be necessary to introduce the *One Health* sub-specialization or at least training for health workers.

The complexity of the phenomenon shall require the creation of domains of expertise within this sub-specialty, such as Environmental Experts.

c) Professional qualification. Complementary specialization.

Professional qualification shall be achieved by means of:

- introducing *One Health* specific notions at all levels of education (kindergarten, gymnasium, high school, post-high school education, university and post-graduate studies);
- post-graduate courses, including for complementary qualification of *One Health* sub-specialty (family doctors and veterinarians are among the first to be targeted since they are most directly involved in the contact with life) and Master's programs.

One Health undergraduate and Master's Courses are already in operation in the Netherlands, Sweden, the USA. In Romania, the Ministry of Education has already authorized a *One Health* course which has not been run yet.

d) One Health Institutions. National and Global Level

The area of involvement of the *One Health* Concept is practically global. Accordingly, the following are needed: National Institutions, reporting to Governments, as well as Global ones, linked to the major world institutions, that must interact among themselves.

In Romania, the creation of the "*One Health* National Agency" is currently submitted for the approval of the Parliament and Government. While in certain countries aspects belonging to the *One Health* concept might be covered by certain already existing institutions, it becomes important to harmonize efforts in *One Health* in various countries.

2. COHERENCE

It is necessary to develop a set of fundamental principles and general rules to be applied and monitored in interaction with all areas that condition life.

Generally speaking, what is not good for humans, animals or plants or for the environment (water, air, earth) must be eliminated or regulated to the extent that the resources of the Planet Earth are still sustainable, including for future generations.

Formalizing synergies, inter-conditionings and modes of action in the domains directly related to health.

It is unanimously accepted that over 70% of the diseases are common to humans and animals. The causes, the effects and the way of solving them should be treated in a similar way. Bearing in mind that Comparative Medicine is an effective tool, the principle is apt to be extended in order to interconnect the other areas of the Concept.

3. ADMINISTRATIVE AND SCIENTIFIC SUPPORT

It is no longer efficient, operative and economical and, moreover, it is no longer scientifically possible for

health and life issues to be treated at sectorial level without taking into account the interdependence of all actors involved and, therefore, the need for coherent treatment and the use of common means arises at local, regional and global level. In this regard,

a) Governments, Regional Organizations and Worldwide Organizations should impose at administrative level the endorsement of a comprehensive < One Health Plan> that addresses the interaction of all areas that affect health and life, together with appropriate objectives, responsibilities and monitoring.

At the EU Commission level, a <European One Health Plan> should be developed and implemented, along with the establishment of a < One Health Agency>, with national subsidiaries.

The 2030 Sustainable Development Goals of the UN, launched in 2015, to which 115 states have adhered, is organized on the basis of 17 goals (No Poverty; Zero Hunger; Good Health and Well-being; Quality Education; Gender Equality; Clean Water and Sanitation; Affordable and Clean Energy; Decent Work and Economic Growth; Industry, Innovation, and Infrastructure; Reducing Inequality; Sustainable Cities and Communities; Responsible Consumption and Production; Climate Action; Life Below Water; Life On Land; Peace, Justice, and Strong Institutions; Partnerships for the Goals). These goals should be complemented by *One Health* measures meant to address in particular the effects of the interconnectivity of the domains set as targets at local, regional and global level.

The European *One Health* Action Plan Against Antimicrobial Resistance (AMR) is central to the *One Health* Plan and should be complemented with a whole spectrum of conditionings that affect life and related measures to be taken.

b) Governments and authorized institutions should financially and logistically support the fundamental and applied scientific research within a <One Health Plan> that will lead to effective policies and strategies, new therapies and new medicines apt to better respond to the dynamics of challenges to health and life.

A more efficient interdisciplinary and inter-country collaboration that harnesses the scientific potential and achievements in the domain, including the setting up of an < One Health European Institute > is to be expected.

III. ACTIVITIES AIMED AT PROMOTING AND DEVELOPING <ONE HEALTH> CONCEPT IN EUROPE WHERE THE FEDERATION OF EUROPEAN ACADEMIES OF MEDICINE COULD PLAY AN IMPORTANT ROLE at EU level and inspired by FEAM (via its One Health Commission) and ESAC (The European Scientific Academies Council) the following activities meant to promote and develop the <One Health> Concept could be considered:

1. Creating a collaborative platform for all professional sectors and actors in general whose activities may have an

impact on health and life in general. Setting up a *One Health* European Network as a basis for information exchanges and professional collaboration.

2. Drawing up a university curriculum appropriate to the development of One Health Concept and analyzing the possibility of creating the One Health sub-specialty in medicine (human and veterinarian), as well as the One Health direction of studies for other types of biology, biochemistry, biophysics studies. Including the "**ONE HEALTH EXPERT**" profession in the Classification of Occupations in Romania (COR).

3. Informing and Educating the population. The education of the individual should come to a new awareness regarding his own life and the relationship with all that surrounds him. FEAM has a major role to play in education of the public as FEAM can provide highly competent advice to National and EU authorities.

4. Setting up the *One Health* European Institute of Comparative Medicine, inspired by FEAM, in Bucharest, with *One Health* Romania as initiator and establishing collaborations with several EU centers, especially the Dutch *One Health* Centre and UK Roslin Institute;

5. Creating proposals to establish programs of general prophylaxis of human, animal and environmental diseases, of food and occupational safety, and then deliver them to National and EU authorities.

6. Contributing to the establishment of a unique and highly active program in Europe meant to combat antimicrobial resistance (AMR);

7. Developing scientific projects within research EU universities in the EU, and in collaboration with FEAM / ESAC in order to establish, projects of national and international interest meant to solve acute health problems of society: resistance to antibiotics (the great challenge of contemporary medicine), the alarming incidence of zoonoses (infectious diseases transmitted through the animal-human route), the almost uncontrolled growth and diversification of many diseases caused by climate change and population movements. Certain potential aspects proposed by the Romanian One Health group could be:

7.1. Biosecurity in connection with zoonoses (transmissible diseases from animals to humans, including through vectors); air, water and soil as propagation media;

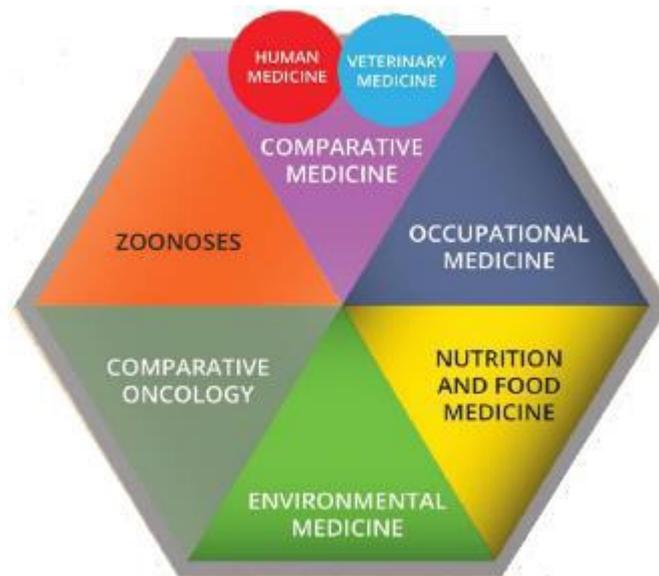
7.2. Immunologically active avian proteins in the human infectious pathology produced by antibiotic-resistant bacteria;

7.3. Identification and quantification, monitoring and alerting with regard to chemicals with oncogenic potential in the Danube waters and its main tributaries on the territory of Romania, and by extrapolation, in other European regions, too;

7.4. Development of immunologically active avian proteins in the human infectious pathology produced by

antibiotic-resistant bacteria; the approach can complement others linked to AMR.

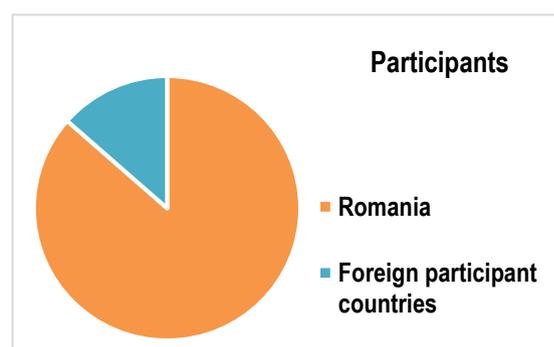
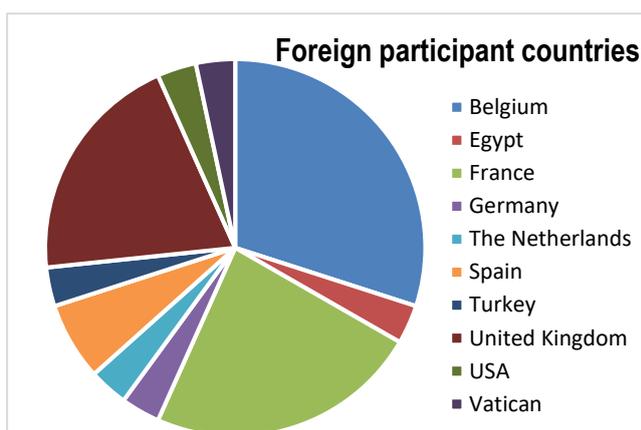
7.5. High-level scientific exchanges at *One Health* conferences that shall be organized periodically, centralized through the forthcoming *One Health* European Network. Mention should be made of the fact that the National Network has been organized in Romania.



CONTENT OF CONFERENCE

On the 21st -22nd of June, the One Health New Medical Concept Romania Association organized the 2nd European One Health Conference under the High Patronage of the Romanian Government with the support of Federation of European Academies of Medicine, *Spiru Haret* University Bucharest, Romania, United Nations Global Sustainability Index Institute and Romanian Academy of Medical Sciences - One Health Comparative Medicine Institute.

The Conference was attended by 223 participants from 11 countries (including Romania).



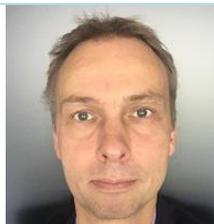
The conference was organized with 6 sessions and 3 round tables. Starting with the

Opening Ceremony which was moderated by Nicolae Manolescu, President, Romanian One Health New Medical Concept and President of One Health Comparative Medicine Institute, the welcome speeches have been presented by:

- **Nicolae Manolescu**, President, Romanian One Health New Medical Concept and President of One Health Comparative Medicine Institute, Romania;
- **George Griffin**, President, Federation of European Academies of Medicine, Emeritus Prof. of Infectious Diseases and Medicine, St George's, University of London, UK;
- **Ștefan Constantinescu**, Professor, Université Catholique de Louvain, Brussels, Belgium; Vice-President, Federation of European Academies of Medicine;
- **André Laurent Parodi**, Honorary President, French National Academy of Medicine;
- **Diana Loreta Păun**, State Counselor at the Romanian Presidency;
- **Irinel Popescu**, President, Romanian Academy of Medical Sciences;
- **Mircea Ifrim**, General Secretary, Romanian Academy of Medical Sciences;
- **Gareth Presch**, Founder, World Health Innovation;
- **Cornel Cătoi**, Rector, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania;

- **Atilla Kelemen**, Member of Scientific Council, Romanian National Sanitary-Veterinary and Food Safety Authority, Romania

4 speakers presented in the **first Plenary Session** entitled **Pharmaceuticals – including microbials, and their environmental impact**.



Hans Stielstra, DG Environment, European Commission, Hans Stielstra has an education in political science and administration. He worked for the Commission's directorate general environment since 1998 in a range of different posts. Since five years, he works on international environment issues, currently as deputy head of unit responsible for global sustainability, multilateral environment agreements and trade.

EC Strategic approach on Pharmaceuticals in the environment. The main problem in this area is the increasing of number and quantity of Pharmaceuticals on the market and, on the consumption. There were found traces of pharmaceuticals on the environment – waters, lakes, fish, insects. Even the Mediterranean ecosystem was affected. Till now the exposure of pharmaceuticals from water is low but the duration of consumption is very long. There are also problems outside Europe which affected us. The main pharmaceuticals found as traces on the environment were: antibiotics, anticonception and anti-inflammatory pills, cytostatic and antidepressants. European Commission wanted to have a more comprehensive approach in managing the pharmaceutical production and consumption. Those 27 One Health's plans elaborated by different countries are a very valuable tools for AMR. There is needed to identified and measure the emergent pollutants and to study the life cycle of the pharmaceuticals in order to identify the criteria of actions for the prevention as first approach of these actions. There are several tools and actins that it is needed to be taken into account:

- The increase of the awareness by promotion of issues related to environment protection related with the production and consumption of the pharmaceuticals; limit and prevent the use of antibiotics whes is the case; closer cooperation with WHO;
- Develop of green manufacturing of pharmaceuticals; improving of water legislation; cooperation between countries related to impact of pharmaceuticals on the environment;
- Better regulation of Veterinarian Medicine – risk assessment of using antibiotics and other pharmaceuticals on animals and their environment
- Reducing waste in pharmaceuticals production and consumption
- Expand the environmental monitoring of pharma substances – research to monitor the quality of water, soil; developing a EU platform for monitoring the substances on the environment;
- Filling the knowledge gaps – toxicity, cost effective methods for reducing the using of pharmaceuticals

As future planning:

- More comprehensive approach before elaboration of new legislation;

- Involving any stakeholders with valuable contribution to the part in this process.

	<p>Hannah Leckke, Policy Analyst, Water Team Climate, Biodiversity and Water Division Environment Directorate (OECD)</p> <p>Hannah Leckie is a Policy Analyst in the Water Team of the OECD Environment Directorate. She leads the OECD's work on water quality. Recent work includes strategies to control pharmaceutical residues in water, emerging policies to manage diffuse (non-point) pollution, and bridging the financing gap for investment in water supply and sanitation infrastructure. She is particularly interested in water pollution and the cost of inaction, the water-food-energy-environment nexus, and innovative solutions utilising the value of nature. Hannah holds a Master of Science in Water Science, Policy and Management from the University of Oxford, UK, and a Bachelor's Degree with Honours in Soil Science from Lincoln University, New Zealand</p>
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OECD strategy on pharmaceutical in the environment and AMR. Sources of pharmaceuticals in the environment. Major sources of pollution include: pharmaceutical manufacturers; individuals and households via WWTPs and inappropriate disposal of pharmaceuticals; agriculture and aquaculture which can involve the use of antibiotics and hormones as growth promoters and for prevention of disease; Hospitals and elderly care homes. In OECD countries, the consumption stage of the life cycle of pharmaceuticals is considered the greatest contributor to the environmental load of pharmaceutical residues in water. 30 to 90% of oral doses administered to humans or animals are excreted as active substances. Human activities: population growth and transport, combined with climate change increase antibiotic resistance of pathogens and the spread of waterborne and vector-borne pathogens, thereby increasing diseases of humans, other animals and plants, and therefore the need for greater use of pharmaceuticals -pharmaceuticals will increasingly be released into the environment.

A focus on preventive source-directed and use-orientated options early in the pharmaceutical life cycle, may deliver the most long-term, cost-effective and large-scale benefits.

OECD modelling shows improved hand hygiene, stewardship programmes such as educational and behavioural interventions for physicians and decision aid tools, and enhanced environmental hygiene and advanced cleaning techniques in hospitals could each avoid 20,000 deaths from AMR each year in the EU and the European Economic Area.

Forthcoming report: *Pharmaceutical residues in freshwater: Hazards and policy responses* provides policy guidance to cost-effectively minimize the risks of pharmaceutical residues in water bodies and their impacts on human health and ecosystems. Report builds on a number of case studies and outcomes of discussions and workshops with policy-makers, academia, industry, health sector, water operators. Report due for official release at Stockholm World Water Week (26-30 August 2019).

OECD work on pharmaceuticals and the environment will continue for 2019-2020, with a detailed economic focus

on management of pharmaceutical household waste, looking at drug-take back schemes and extended producer responsibility.

Future OECD work on AMR: Evaluation of the indirect costs produced by AMR; Analyses in a 'One- Health' framework. Only 9 OECD Countries have developed and funded a 'One-health' AMR National Action Plan; Additional interventions (e.g. vaccination, etc.); Enlarge the geographical scope.



Christoph Lübbert, M.D., Ph.D., Head, Division of Infectious Diseases & Tropical Medicine, Department of Gastroenterology, University Hospital - University of Leipzig, Germany
Christoph Lübbert has medical studies at the Universities of Kiel, Zurich (Switzerland) and Durban (South Africa). Doctorate (Dr. med.) with an experimental work on cytomegalovirus infections in 1999. Clinical training in internal medicine, gastroenterology, infectious diseases and tropical medicine (including a DTM&H at the Liverpool School of Hygiene and Tropical Medicine, UK) from 2000-2008 at various locations. 2008-2012 senior physician at the University Hospital Halle (Saale) in Germany, specializing in gastrointestinal endoscopy and infectious diseases. 2012 takeover as head of the Division of Infectious Diseases and Tropical Medicine within the Department of Gastroenterology and Rheumatology of the University Hospital Leipzig, Germany. 2015 habilitation and receipt of the venialegendi for internal medicine at the University of Leipzig. In the same year election to the scientific advisory board of the German Society of Infectious Diseases (DGI). 2016 winner of the prevention award for internal medicine of the German Society of Internal Medicine (DGIM). In the same year also winner of the Theodor Litt award for special commitment in teaching by the University of Leipzig. In 2017 call for a full professorship at the University of Lübeck (rejected). Early appointment as professor for internal medicine and infectious diseases by the University of Leipzig. Elected to the board of the German Society of Infectious Diseases (DGI) in 2017

Multi-drug resistance as a growing global problem and its clinical impact. After a short history of the antimicrobial resistance and some statistical data concerning worldwide deaths from antimicrobial resistance, Romania placing on the 3rd place, main drivers of AMR and resistance genes and globalization was presented.

Some experiences also from India and the occurrence of high levels of fluoroquinolones in Aquatic environment due to effluent discharges from bulk drug manufacturers were revealed.

Nosocomial infections in Germany and some examples from European countries were given. The author conclusions are:

- It cannot be fair that we are outsourcing dirty antibiotic manufacturing processes to the very fast emerging countries that already have the biggest resistance problems worldwide.

- The European Commission was appealed for its commitment to ensure that the pharmaceutical industry transparently discloses its supply chains and to strictly prevent the release of antibiotics into the environment.
- This over said can only be achieved through a redefinition of the GMP criteria under the auspices of the WHO with the addition of globally harmonized environmental standards as part of the regulatory controls for pharmaceutical products, in particular antibiotics and chemotherapeutics.



Jason Snape, Global Safety, Health and Environment Director and Senior Principal, Environmental Scientist – AstraZeneca

Jason Snape joined AstraZeneca in 1995 as an experimental scientist to study the environmental fate, behaviour and degradation of pharmaceuticals as they enter the environment after patient use. As this area of study has grown in understanding and visibility, his role has developed and progressed and he is now the Senior Principal Environmental Scientist responsible for leading the Safety, Health and Environment foresight and research programmes.

Jason Snape has always been passionate about science-based advocacy and his PhD in environmental microbiology and biochemistry from Cardiff University, which investigated the bacterial metabolism of nitrate esters that are used as active ingredients in cardiovascular drugs and explosives, set him up for his current role. Being at the science-policy interface helps to ensure regulations are based on sound science and that all stakeholders work together to ensure that patients can access medicines without compromising the health of our natural environment.

The environmental dimensions of AMR – industry perspective. Environmental risk assessment of human medicinal products was done taking into account the potential for environmental exposure and for environmental impact as well as the improvements in analytical detection. In this context data-gaps in public domain was identified.

What about antibiotics? Most pharmaceuticals pose insignificant risk, but research concerning setting protection goals for antibiotics and effects and risks of antibiotics for patients was done. Another issue taken into account was the exposure related to pharmaceutical manufacturing.

Stakeholder are also concerned about antimicrobial resistance (AMR). That is why setting protection goals for antibiotics was established: environmental Risk Assessment Data: NOECs for activated sludge, algae (cyanobacteria), daphnia and fish and EC50 and LC50 data for algae (cyanobacteria), daphnia and fish. But only routinely test one cyanobacterial species (literature comparison) was experimented. Comparing NOEC from le

Page et al (2017) it was an adjustment of MIC from Bengtsson-Palme and Larsson (2016). There are needed clinically relevant data.

Setting protection goals: what other options exist? Several activities were listed: Levels of antimicrobial resistance genes (ARGs); Treats the genetic determinants for resistance as pollutants (bacteria and naked DNA); Activity-based assessments; Range of US Food and Drug Administration (FDA) approved antibiotic residue tests/ activity assays; many designed to screen milk (low sensitivity); Number of ceftaxime resistant *E. coli*; Looks to build upon existing bathing water standards for enterics by looking at resistant enteric component; Minimum Selective Concentrations (MSCs); Some data starting to appear for simple competition assays and some complex microbial communities.

The study presented the environmental exposure like for antibiotics by analysing of 91 antibiotics analysed based on worst case exposure predictions. The Environmental and human health risks of antibiotics and the Exposure related to pharmaceutical manufacturing was also studied.

Based on the Stakeholder challenges: increased NGO Pressures and the Government and inter-government activities an industry response was elaborated - AMR Roadmap which pointed up the following: Reduce environmental impact from production of antibiotics; Ensure Antibiotics are used only by those who need them; Improve access to current/future antibiotics and vaccines; Explore new opportunities for open collaborations between industry and the public sector.

Industry response - reducing production impacts - *Review our own manufacturing and supply chains*; Establish common framework for managing antibiotic discharge; *develop a practical mechanism to transparently demonstrate that our supply chains meet the standards in the framework*; to establish science-driven, risk-based *targets for discharge concentrations for antibiotics* and good practice methods to reduce environmental impact of manufacturing discharges, by 2020."

AMR Alliance -first industry report

The first Round table, Cross-sectoral roundtable discussion (FEAM European Biomedical Policy Forum) was moderated by George Griffin.



George Griffin, President, Federation of European Academies of Medicine (FEAM)
Prof. George Griffin gained BSc in Pharmacology and Molecular Biology at King's College London Sciences, where he was awarded the Delegacy Prize for Excellence in Preclinical Science. He was awarded PhD in Cell Biology/Biochemistry, University of Hull, and returned to clinical studies at St George, University of London, where he was awarded the MBBS. Professor Griffin's postgraduate training paralleled basic and clinical science. During this time, he was awarded a Harkness Fellowship of the

Commonwealth Fund of New York at Harvard Medical School. On return to the UK, he continued clinical training at Royal Postgraduate Medical School where he was tutor in Medicine, and the National Hospital for Nervous Diseases. He then returned to St George's as lecturer and was awarded a Wellcome Trust Senior Lectureship and became consultant physician on the Clinical Infection Unit where he was instrumental in developing an internationally renowned research unit twinned to the Clinical Unit. He held prestigious research fellowships in the University of Michigan and National Institutes of Health.

He has chaired scientific advisory boards in major pharmaceutical industry in the USA and UK. He has been chair and member of major Wellcome, Medical Research Council and Gates Foundation committees. He was censor at the Royal College of Physicians [HYPERLINK "http://www.rcplondon.ac.uk/"](http://www.rcplondon.ac.uk/) and was made a member of the Academy of Medical Sciences in which he has been elected to become foreign secretary and council member. He was appointed to the board of Public Health England where he will help shape strategy for research and clinical development. Professor Griffin was awarded the distinction of CBE in 2018 (Commander of the British Empire) for his research and its contribution to Public Health.

His research has focussed on the host response to infection at cell, molecular and whole body level. Such work involves immune and metabolic responses in vivo in humans. Furthermore cell and molecular studies include culture of human mucosal explants and definition of macrophage activation in vitro by microbial agents. A macrophage is a cell which ingests particles (microorganisms or host cells) for destruction and immune presentation. It is important in intracellular infection and also produces cytokines (a category of signalling molecules) as part of the immune response.

Professor Griffin's principal clinical contributions to knowledge have been in the characterisation of intestinal disease in HIV infection, mechanism of weight loss in HIV and definition of loss of mucosal immune response in advanced HIV infection. The dominant cell and molecular achievements have been the characterisation of NF-kb, a crucial factor maintaining macrophage differentiation and the role this transcription factor plays during tuberculosis infection of the macrophage and the mechanism of enhanced HIV transcription in such cells. More recently he has characterised the role of co-infection of HIV infected cells with herpes virus in enhanced HIV transcription in the genital epithelium.

André Laurent Parodi CV – at page 20



Irinel Popescu, PhD, physician, correspondent member of the Romanian Academy, Medical Sciences Section (since November 2013).

He currently runs the Clinic of Liver Surgery and Transplantation at the Fundeni Clinical Institute, Scientific Director of the Fundeni Clinical Institute (President, Scientific Council of IC Fundeni), Head of the General Surgery and Fundamental Transplantation Center, University Professor UMF "Carol Davila" – Bucharest, Coordinator training programs of the research platform, "George Emil Palade" of the University of Medicine and Pharmacy "Carol Davila" Bucharest, Member of the Consultative College for Research, Development and Research Innovation of the Ministry of Education and Research, Vice-President of the CNATDCU Bureau (National Grant Commission of Titles, Diplomas, and University Certificates), Senator - Chairman of the Senate Education Commission Romania, Council of Europe expert on transplantation issues

5 papers were presented in this section:



Heiman Wertheim, Clinical microbiologist at Oxford University Clinical Research Unit (Hanoi, Vietnam, National Hospital for Tropical Diseases)

Heiman Wertheim is a professor in clinical microbiology and heads the clinical microbiology department at Radboud University Medical Center and is chair of the Radboud Center of Infectious Diseases (RCI, www.radboudrci.nl). Heiman is member of the 'Board of Science and Innovation' at the Dutch Federation of Medical Specialists. Until 2015, Heiman was director of the Oxford University Clinical Research Unit (OUCRU, www.oucr.org) in Hanoi, Vietnam. He coordinated laboratory capacity strengthening and conducted research in Southeast Asia. He worked on a broad range of infectious disease issues, varying from zoonoses (e.g. *Streptococcus suis*, avian influenza) to hospital acquired infections. One of his main interests is antibiotic resistance in both resource rich and resource constrained settings and does this through a multidisciplinary approach: One Health, health systems, policy development,

behaviour, surveillance, prevention, genomics, and clinical trials. He supervised activities for the Global Antibiotic Resistance Partnership (GARP) in Vietnam, which did a situation analysis on antibiotic use and resistance. He received funding to set up a national AMR reference laboratory and to improve the governance structure of AMR in Vietnam. Recently he demonstrated that C-reactive protein point of care testing can bring down antibiotic use safely in primary health stations in Vietnam. Heiman is currently part of a WHO expert panel to develop a priority pathogens list (PPL) of antimicrobial resistant bacteria with the aim of providing an essential guide for planning, implementing, and monitoring R&D in the field of new antibiotics. In the region of Nijmegen, he is active in the Gelderland Antibioticaresistentie en Infectiepreventie Netwerk (GAIN).

Antibiotic resistance in a global *One Health* perspective; a personal experience from Vietnam. Starting with a definition of One Health concept as being a collaborative effort of multiple disciplines to attain optimal health for people, animals and the environment, a global AMR trend humans & animals was presented as well as the consequences of AMR vs addressing resistance. It was also presented some experiences from Vietnam such as potential risk of *Streptococcus suis* infection from raw pig blood consumption, about Rabies from eating meat dogs.

An illustrative example of the ONE HEALTH AMR problem was an ICU patient in Asia and VINARES project in which 16 hospitals participated. Another subject presented was a study about antibiotics use in Africa vs Asia, especially in agriculture.

Hygiene and the environment focused on the gut as an important source of AMR and the importance of collaboration, monitoring and improving was also pointed out. At the end of the presentation the extrapolation of antimicrobial use and resistance in Europe in humans and animals was relieved.



Andrei-Alexandru Muntean, MD Assistant Professor at Carol Davila University of Medicine and Pharmacy – UMF CD.

Dr. Andrei-Alexandru Muntean was graduated at the "Carol Davila" University of Medicine and Pharmacy, specializing in pneumology at the "Marius Nasta" Institute of Pneumology, is currently assistant professor at the Department of Medical Microbiology, UMF "Carol Davila". He has experience in research and prototype of publications, research activities and scientific papers. His fields of interest are clinical medicine pneumology, semiology and biomedical research

Antimicrobial resistance: A One Health approach in ESKAPE pathogen. Antibiotic resistant bacteria represent a growing public health problem worldwide. The so-called ESKAPE pathogens (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa* and *Enterobacter spp.*) are a series of epidemiologically-important microorganisms of great concern due to their high levels of resistance. *Escherichia coli* is sometimes also added alongside this list due to its potential to harbour and disseminate resistance.

We aim to review to update the background information on the ESKAPE pathogens as well as to provide a summary of the phenotypic and molecular methods used to detect their antimicrobial resistance mechanisms from a One Health perspective. While they are usually linked to hospital acquired infections, antimicrobial resistance is also spreading in the veterinary and the environmental sectors.

In this regard, the impact of the ESKAPE pathogens outside the hospital setting is not fully understood at the moment. Yet, the epidemiological loop closes with patients which, when infected with such pathogens, often lack therapeutic options. This leads to high morbidity and mortality rates as well as adding a high financial burden on the medical healthcare systems.

Better policies, to aid in preventing antibiotic resistance, rapid detection methods, molecular characterization methods of antimicrobial resistance genes in different ecosystems can help alleviate the burden.



Miron Alexandru Bogdan, MD, PhD, Professor at Carol Davila University of Medicine and Pharmacy – UMF CD

MD, PhD, Professor at Carol Davila University of Medicine and Pharmacy – UMF CD
Graduated from the Faculty of Medicine of the "Carol Davila" University of Medicine and Pharmacy in Bucharest in 1973. Senior Physician of Pneumology and Internal Medicine. Professor of Pneumology since 1993 in Bucharest. Head of the Pneumology Department of the "Marius Nasta" National Institute of Pneumophtysiology in Bucharest since 1996. Head of the Chair of Pneumology of the "Carol Davila" University of Medicine and Pharmacy. Former Vice Dean of the Faculty of Medicine. Member of the "Conférence des Doyens des Facultés de Médecine de Langue Française". Visiting Professor of Pneumology at the Université Paris-Sud (1994 - 1996). Former President of the Romanian Society of Pneumology (1998 - 2002). Creator and Manager of the National Program for Pulmonary Arterial Hypertension in Romania (since 2008). Clinically and academically active on the National and International Pneumology scene. Vice President of the "One Health" Association Romania, Member of the Hospitaller and Military Order of Saint Lazarus of Jerusalem, Hospitaller of the Grand Priory of Romania.

Bacterial Antibiotic Resistance in Romania. The results of the 3 years project BACTRO on antibiotic resistance of *Streptococcus pneumoniae* and *Haemophilus influenzae* in Romania revealed a mediocre antibiotic stewardship in Romania and original data were used to build up a continuous medical education program dedicated to antibiotic therapy, especially in out-patients; between 2000 and 2002, 1600 physicians and 800 nurses underwent CME (the Otto 2000 program).

Also, original research results on microcalorimetry in studying bacterial antibiotic resistance and carbapenemase detection were presented. The microcalorimetry method showed high efficiency, rapid identification of microorganisms directly from clinical specimens and rapid (1 hour) identification of clinically-significant antibiotic resistance.

The rapid carbapenem inactivation method (rCIM) is 3 times cheaper and accessible to laboratories in resource-limited settings, requires ordinary laboratory supplies, rapid and high specificity, capable of identifying all carbapenem inactivating enzymes.



Jean-Christophe Giard, Co-Director of the Research Unit “Unité de Recherche Risques Microbiens” University of Caen Normandy, CHU Cote de Nacre, France
Prof. Giard leads the group of Antibiotic Resistance of the U2RM (EA4655) research team, located at the University Hospital of Caen. This group is internationally recognized for their works on the study of mechanisms of resistance to antimicrobials as well as the analysis of the virulence of opportunistic pathogens. For more than 20 years, Prof. Giard works on the analysis of the regulation mechanisms driving the bacterial adaptation to stress and/or involved in the virulence of opportunistic pathogens. Since the last 8 years, the research projects deal with the antimicrobial resistance in Gram positive and negative bacteria. In addition, the laboratory was involved in projects evaluating the anti-bacterial effects of different chemical compounds. Prof. Girardi’s author and co-author of 63 peer-reviewed scientific articles and gained experiences as contributor of several research projects: 4 internationals (2 ERA-Net PathoGenoMics and 2 Interreg), 2 nationals, and 4 regionals (coordination).

Antimicrobial susceptibility of equine clinical isolates from France (2006-2016). A large scale 11 years study (more than 25,000 isolates) in which the most important panorama of the antimicrobial susceptibility in equine field was presented. The main pathogens identified were: group C Streptococci, *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Enterobacter spp.*, *Klebsiella pneumoniae* and *Rhodococcus equi*. The conclusions of the study were: no therapeutic problem to fight against *Streptococci* or *Rhodococcus* was found; there are few choices to treat *Pseudomonas aeruginosa* infections but the evolution seems favorable; about *E. coli*: 40% are resistant to Amoxicillin, less than 10% were resistant to C3G or C4G (ESBL or CPE); close

supervision is necessary to avoid a therapeutic impasse; majority of *Enterobacter* spp. remained susceptible to Amikacine and Marbofloxacin. As recommendations: avoid empirical practices; need to support veterinary antimicrobial stewardship; observe hygiene measures.



Munis Dundar, PhD, MD, Prof., President of the European Biotechnology Network Association. Munis Dundar is a professor of Medical Genetics and Head of the Medical Genetics Department at Erciyes University, Kayseri, Turkey. He is founder and head of the Medical Genetics Department at Erciyes University and has carried out various administrative tasks since 1996. He defined four genetic syndromes in the medical literature: the “Dundar Syndrome”, “Dundar Acropectoral Syndrome”, “Scoliosis, Blindness and Arachnodactyly Syndrome” and “Multiple Congenital Abnormalities and Mental Retardation Syndrome”. He has taken part as project coordinator and assistant investigator in many research projects and has prepared articles published in international journals since 1995.

Future Biomedicine and EBTNA. The presentation started with Human genome Project and its outcomes. The Human Genome Project was initiated in 1990 and was completed in 2003, involving the joint efforts of scientists in many countries, public programs and private companies, in order to determine the sequence of the human genome and identify the genes that it contains. What was done? The human genome is the complete set of genetic information for humans: identify all 20,000 to 22,000 genes in human DNA, determine sequence of 3 billion chemical base pairs of DNA; 3.7 million human SNP (single-nucleotide polymorphism – DNA sequence variation in a single nucleotide) was mapped in February of 2003; 99% of the gene-containing section of the human genome sequence was completed, in April of 2003. The results consisted in understanding how many nucleotide base pairs there are in genes, how the genome is organized and where mutations occur. Some rapid benefits of the human genome project can be seen Molecular medicine.

The next subject was the Next-generation sequencing (NGS) technology for which was presented the usage Areas of NGS Technology and bioinformatics methods in rare diseases.

The next subject was the presentation of the European Biotechnology Thematic Network Association, its activities: projects, trainings others.

George Griffin and Stefan Constantinescu moderated the third Plenary Session.



Ștefan N. Constantinescu, Prof., M.D., Ph.D., Professor at the Université catholique de Louvain, Brussels, Belgium, Member of Ludwig Institute for Cancer Research, Brussels, Belgium, Tenured Investigator of the FNRS (Fonds National de la Recherche Scientifique).

Group Leader, Ludwig Institute for Cancer Research, Brussels Branch of Cancer Genetics, Brussels, Belgium. 2000- Member of the Doctoral School of Genetics and Immunology (GIM), Mentor for Graduate Studies, Université catholique de Louvain, Brussels, Belgium. 1995-2000 Anna Fuller Fellow in Molecular Oncology (1995-1998) & Postdoctoral Fellow of the The Medical Foundation, Boston (1998-2000), Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, Cambridge, MA (with Prof. Harvey F. Lodish) 1992-1994 Postdoctoral Research Associate, Department of Pathology, University of Tennessee, Memphis College of Medicine (with Prof. Lawrence M. Pfeffer), Memphis, TN, U.S.A

Within the third Plenary session there were presented 5 papers:



Nicolae Manolescu, Academician of Romanian Academy, Correspondent Member of the French Academy of Medicine, Profesor of morphopathology to the Veterinary Medicine Faculty, from Spiru Haret University, is a distinguished personality of the Romanian scientific activity, having, over time, had a numerous expert positions as well as leading positions, such as: F.A.O expert, President of the “Fundamental Medicine Department” of the Romanian Academy of Medical Sciences, President of the Scientific Board of the National Sanitary Veterinary and Food Safety Agency. Counsellor of the President of the National Sanitary Veterinary and Food Safety Agency, Expert on avian influenza and swine fever, Expert of U.N.O on Bioterrorism, Expert of European Community on Bioterrorism, European Expert on Oncology, Executive Director of the Working Group for Bioterrorism Defeat by Biotechnology for Technological Transfer Europe, Director of the Center of Excellence in Comparative Oncology – Faculty of Veterinary Medicine, Bucharest, Expert on Food Safety and Security, President of the Commission of Comparative Medicine of the Romanian Academy, Director and Founder of Post-University High Studies School of Veterinary Medicine, University of Agronomic Sciences and Veterinary Medicine of Bucharest, President of the Romanian Agency of Applied Biotechnology, President of One Health-New medical Concept Association, Romania, Head of the department of Comparative Medicine – Romanian Academy of Medical Sciences, etc. Also, he is an author of over 500 works (communicated and published), 27 books, 12 patents and 2 pending requests.

Proposals for the structure of a novel One Health European program. The author presented a proposal to

endorse, organize and run a European-level project for the implementation of One Health concept in the above-mentioned space, under the coordination of FEAM One Health Commission, relying on the experience of Romania and the Netherlands as fully-fledged pilot stations of One Health implementation, alongside other European Academies of Medicine willing to join this initiative.

It goes without saying that the great beneficiaries of this enterprise would be, on the one hand, the citizens of the European Union, and on the other hand, the living environment as a whole, together with its biotic and abiotic factors.



André Laurent Parodi, PhD, Professor Ecole Nationale Vétérinaire d'Alfort (ENVA), Paris University, Académie nationale de Médecine, Académie vétérinaire de France

He is Paris Pasteur Institute Graduated. He has been Professor, Head of the Department of Veterinary Pathology and then Director of ENVA. He is Doctor Honoris Causa, University of Cordoba (Spain), Bucharest (Romania) and Liège (Belgium). He was a Member of the EC Scientific Committee for Animal Health and Animal Welfare (DG XXIV), President of the French Commission for Veterinary Products registration. He is a Member of the Académie Vétérinaire de France (President 2000), of the Académie nationale de Médecine (France) (President 2012) and Honorary member of the Académie nationale de Pharmacie (France). He was member of the WHO expert group for Animal Tumors Classification, member of the European Committee for Investigation in Animal Pathology, President of the Scientific Committee of the French "Centre National d'Etudes Vétérinaires et Alimentaires" (CNEVA), American College of Veterinary Pathology (ACVP) honorary Member and President of the Board of the European College of Veterinary Pathology (ECVP). His main Scientific investigation activities were developed in the field of Viruses associated Malignant Lymphomas in Domestic Animals (Enzootic Bovine Leukosis and Feline Leukemia /Sarcoma complex), as animal models for human medicine. He is one of the founding fathers of REEV Med.

Veterinary oncology: past, present and future. Veterinary Cancerology today has had improvements in Diagnostic and Prognostic as Treatments and Biology. Concerning diagnostic and prognostic there are improvements in Histopathology, Immunohistochemistry using sophisticated diagnostic imaging facilities such as Computerized Tomography (CT), Magnetic resonance imaging (MRI) and Positron-emission tomography (PET). Concerning treatments: Surgery, Radiation therapy, Interstitial Radiotherapy, Chemothérapie, Electrochemotherapy and Immunotherapy. Very important is Biology: Genetic predisposition, Immunology. Veterinary Cancerology is in a position to provide valuable support to Human Cancerology investigation. It can be used translational drug development studies. As conclusions: naturally occurring cancers in companion animals are a great resource, as shown by the remarkable growth that comparative oncology has seen over the last 30

years; cancer has become a leading cause of death in companion animals now that more pets are living long enough to develop the disease; more owners are seeking advanced and novel therapies for their pets as they are very much considered family members. Living in the same environments, pets and humans are often afflicted by the same types of cancer which show similar behavior and, in some species, express the same antigen molecules. The treatment of pet tumors using novel therapies is of compelling translational significance. This comparative approach is able to provide benefits both to human beings and their companion animals.



André Jestin, PhD, VMD – Conseiller Scientifique auprès du Directeur General, French Agency for Food, Environmental and Occupational Health & Safety (ANSES), One Health EJP Coordinator

European Union funded research projects on Zoonoses, added value of the One Health approach. The presentation is consisting in 2 parts: EU-funded research projects and Evaluation of the added value of the One Health approach

The first part presented examples in which One Health has been operationalised.

1. Collaborative project: COMPARE aiming to develop a framework, sharing platform system for the rapid identification, containment and mitigation of emerging infectious diseases and foodborne outbreaks.
2. Public-public partnership: JPI AMR - Joint Programme Initiative on Antimicrobial Resistance; JPI AMR Joint Call “Transmission Dynamics” which illustrates a perfect example of application of the One Health approach; One Health EJP, the One Health concept being implemented through a «Med-Vet» partnership ; ARDIG project: Antibiotic Resistance Dynamics: the influence of geographic origin and management systems on resistance gene flows within humans, animals and the environment; HBM4EU EJP: Human Bio-Monitoring for EU EJP; EU-JAMRAI: Joint Action on Antimicrobial Resistance and Healthcare Associated Infections (HCAI).
3. Public-Private partnership: ZAPI - Zoonoses Anticipation and Preparedness Initiative International Research Consortium on Animal Health (IRC-AH);
4. International collaboration: IRC-AH

In the second part, NEOH : Network for Evaluation of One Health - COST Action, Funded by the European Cooperation in Science and Technology was presented.



Cristina Gârlea, is Head of research department "Eco-economy and agro-forestry biodiversity" in Romanian Academy - INCE, CSCBA. She is graduated in 1972 in University of Bucharest and was awarded PhD in Nuclear Physics at the Institute of Atomic Physics Magurele Romania. She is a former fellow of IAEA Vienna and DOE USA (U.K., Russian Federation France, Turkey, Brasil, Ukraine, Spain, Slovenia, Latvia, Austria, Uzbekistan, Germany, Belgium. Luxemburg, Italy and Switzerland). Her research activity was focused on reactor physics, decommissioning of obsolete installations, risk management, biodiversity, one health, environmental pollution, ecological restoration, response to special terrorism, as senior researcher and group leader in international projects. She led 18 national research projects and was member of private teams for assessment, design and investment. She is acting as associated professor .as well as national expert to DGI and DGXI in Brussels She published 3 books and more than 140 peer review articles, being also in editorial board of 3 dedicated OH journals and as well as in Administration Board of NUCLEARELECTRICA SA and other private companies. She is member and founder of professional associations: ONE HEALTH Romania, DAGENE, SER Europa, UNESCO Club, CRIFTS, SCOSSAR, AREN, WIN, FCNAI She completed formation courses in European Institute of Romania and UPB. She is member of National. Scientific Collegium of Romanian National Protected Areas. She completed the Internal Affairs National Collegium of Police Academy and Romanian Diplomatic Institute in Ministry of External Affairs. .

Academic approach of major risk in environment. There were mentioned some conferences in the world on disaster reduction, for example in 2005, in Kobe, Hyogo, Japan - Worldwide Disaster Reduction Conference, in 2016 Sendai, Japan (UN)International Conference on Disaster Risk Reduction . Two important documents were adopted : the Hyogo Post Framework for Action, which will guide disaster risk reduction activity over the next 15 years and the Sendai Declaration, with the political value of engaging United Nation Organization member states in supporting disaster risk reduction efforts at international and national levels.In Romania in 2016, the Government issues Decision No. 768 regulating the organization, functioning, component, leadership and attributions of the National Platform which presently doesn't function.

Were presented two case studies on landslides Danube Falls Galati, one case study on a train with ammonium nitrate and one case studywith radioactive waste in the periurban area. There are presented the integrative methods for control of the movements of ground masses in Danube areas Galati and Giurgiu , including in situ and in lab studies of lithology. The scientific results .include also the satelit surveillance and mathematical . models. There are presented teh results of measurements in area of the former radioactive waste storages near . Bucharest and the solution of ecological restoration of the site, in terms of legal documentation for free releasing

ofn the site. Reffering to incident with dangerous materail was analyzed the risk on the environment and population compared with the rules in force in the country. It is also analyzed the public politics to protect the people and biodiversity in the areas affected by disasters, including prevention and intervention of the authorities



Petre Bădică is a Senior Researcher at National Institute for Materials Physics, Magurele, Romania. He graduated in 1992 from University 'Politehnica' Bucharest, Romania and was awarded a PhD in Engineering Sciences from National Technical University of Ukraine, 'Kiev Polytechnical Institute' in 1996. His interest is in synthesis/processing by conventional and unconventional methods of advanced materials, new materials, and applied physics. He published about 200 peer-reviewed articles. He is a former JSPS-STA, NIMS, NEDO, MANA, Alexander von Humboldt fellow and a Visiting Prof. at Tohoku University, Japan and at Nanyang Technological University, Singapore.

MgB₂ based materials for the improvement of life quality. Superconductors can play an important role in fabrication of new devices and equipments for medical diagnosis and treatment. Superconducting coils, bulk magnets and SQUID devices are currently tested for example in tomography imaging, magnetic-guided drug delivery systems and others.

A practical superconductor is MgB₂. It is prized for its lightweight characteristics of much interest for portable applications, low price, being free of noble or rare earths expensive elements, and availability.

In our work, we fabricate MgB₂ based wires, tapes and bulks, and we investigate their superconducting properties. Processing conditions, additives or the use of different technologies can improve the critical current density, irreversibility magnetic field, trapped magnetic field, or magnetic shielding factor.

Different MgB₂ based composites were proposed, fabricated and characterized. A machinable MgB₂ based material was obtained and different bulk shapes were modeled and magnetically studied.

Recently we have demonstrated that MgB₂ shows antimicrobial activity. Moreover, MgB₂ has an excellent inhibitory effect against biofilms formed by Gram positive and Gram-negative bacteria (*Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, *Staphylococcus aureus* ATCC 25923, *Enterococcus faecium* DSM 13590) and yeasts (*Candida parapsilosis* ATCC 22019 and *Candida albicans* ATCC 10231). Since MgB₂ is a water-degradable material we explore its application for biodegradable coatings or bulks. The target is to propose new composite materials with time and space-controlled bioactivity.

Search for new materials with efficient antimicrobial activity and environment-friendly is of paramount importance for fighting the antimicrobial resistance phenomenon which presently is considered a global public health threat, requiring immediate concerted measures and action plans. The incorporation of these materials in biodegradable coatings could prevent the biofilm-associated infections, representing 80% of the total number of infections globally as well as the development of undesired biofilms in natural environments and industry.

The second Round Table chaired by Gareth Presch, Munis Dundar and Costin Lianu had the subject the business environment and *One Health* – Food security and food certification. Organic and ecological products, disruptive technologies.



Gareth Presch is a social entrepreneur who believes in sharing knowledge. He is the founder and CEO of the World Health Innovation Summit (#WHIS) a platform to inspire, innovate and share knowledge to improve healthcare while stimulating vibrant communities. A problem solver and healthcare strategist who has experience working in public, private and voluntary healthcare settings in the NHS (ehealth) and abroad. Patient focused and quality driven, a former Chief Officer of the National Haemophilia Council a statutory body in Ireland. Gareth has also managed National Clinical Programmes on Blood Transfusion (establishment of the National Blood Transfusion Committee), Haemochromatosis and the Endoscopy improvement program. He has extensive networks around the world. Winner of the Carlisle Living Innovation award 2016 Special Recognition Award Zenith Global Healthcare 2016 Expert Leader United Nations Global Sustainability Index Institute (UNSGII) - Sustainable Development Goals 3 & 4 Leadership Fellow St George's House, Windsor Castle Co-President One Health, Vice Chair Global Wellness Institute - Initiative SDGs .

SDGs One Health Panel



Munis Mundar CV – at page 18



Costin Lianu, PhD, assoc. professor, deputy rector of Spiru Haret University

Costin Lianu is economist, expert in economic affairs, involved in specialized research in internationalization, management, innovation and branding. Author of books in this fields. Practitioner in innovation and internationalization ecosystems.

Short presentations were given by:

Speaker	Title
Violeta-Elena Simion, Adriana Amfim	Mycotoxins in food of non-animal origin – risk for animals and humans
Mădălina Belous	Food certification – a value added for food safety
Mădălina-Teodora Andrei, Bianca-Elisabeta Panduru, Cristina Ilie	Building economy support for natural protected areas using a <i>One Health</i> perspective
Irina Zamfirache, Oliva Maria Dourado Martins, Violeta-Elena Simion	Edible insects – alternative sources of food?
Dan Rădulescu	Standards and regulations for the value chain related on <i>One Health</i> nature-based solutions for a healthier living
Costin Lianu, Irina Gabriela Rădulescu, Corina Gudei	Romanian organic agriculture, vector of bioeconomy in Romania. Inter professional organization in organic farming and <i>One Health</i> concept
Mădălina Giurescu, Stefan Lianu, Alexandru Merfu	Standards and regulations for the value chain related on <i>One Health</i> . <i>Seabuckthorn</i> – a revolutionary element for health
Costin Lianu, Cosmin Lianu	Transforming the business environment to match with <i>One Health</i> paradigm. Where is the profit?
Nicolae Crăciun, Maria Teodorescu	Trends and solutions towards sustainable life, science, food and environment

André Laurent Parodi and **Nicolae Manolescu** chaired the **fourth Plenary Session** with 4 presentations



Eleanor M. Riley, obtained a 1978 BSc in Cellular Pathology from the University of Bristol (1st class Honours) and a BVSc, Veterinary Science, University of Bristol (with Honours). Presently she is professor of Infectious Disease Immunology at the University of Edinburgh and since 2017 is the Director of the Roslin Institute at the University of Edinburgh, the Institute where the major advancement represented by mammalian cloning was achieved with major impact on current understanding of cell differentiation. Also, she is the Chair of the BBSRC

Bioscience for Health Strategy Advisory Panel and Deputy Chair of the MRC Infections and Immunity Board. Between 2001 – 2013 she was the head of the Department of Immunology and Infection, LSHTM.

Distinctions and Awards:

- Fred L Soper Lecturer, American Society Tropical Medicine and Hygiene, 2015
- Fellow, Royal Society of Biology, 2015
- Fellow, Academy of Medical Sciences, 2014
- Malaria Scholar, Emory University, Atlanta, GA, USA, 2006
- Wellcome Trust Senior Research Fellowship, 1990
- Wellcome Trust Veterinary Research Training Fellowship, 1981

One Health research: The Roslin Institute. College of Medicine and Veterinary Medicine - research institutes in genetics, infectious diseases, population health, inflammation and cancer research all work across species boundaries.

MSc in One Health : <https://www.ed.ac.uk/vet/studying/postgraduate/taught-programmes/one-health>. One Health PhD programmes with Leiden University Medical Centre, Netherlands; University of Glasgow, UK and University College Dublin, Ireland. All research, teaching, clinical science and commercialisation are integrated at Roslin Institute and the institute is UK's leading animal bioscience research centre funded by UK government in the domain of Food Security and Bioscience for Health.



Marc Eloit is professor of virology at the Veterinary School of Maisons-Alfort and the head of the Pathogen Discovery laboratory at Institute Pasteur (Paris). He has been a member of the Virus Safety Committee, French Agency of Medicinal Products (1992-2012). He founded in 2010 Pathoquest, a spin-out of Institute Pasteur dedicated to the identification of pathogens using untargeted Next Generation Sequencing. He has been its CSO till the end of 2016 and acts currently as a scientific advisor for the company.

The SPILLOVER program: looking for unknown zoonotic viruses by exploring animal reservoirs-human interfaces using wide range agnostic detection techniques

SPILLOVER project: non-hypothesis driven tools available to decipher the whole catalog of viruses of animal reservoirs, but more importantly to detect those which already circulate in human populations,

MicroSeek pipeline Bacteriome & Mycobiome pipelines LIPS. Collaborations are in place with Cambodia, Lao PDR, and China. Finding new arboviruses of mosquitoes is a major objective, with the aim to broaden the spectrum of targeted surveillance networks.

Easy integration in surveillance networks targeted to known arboviruses (arthropod/human coordinated samples collection).



Mirjam Nielen is full professor in Evidence-based Veterinary Medicine at the Department of Farm Animal Health, Utrecht University. Her main academic tasks are research, teaching and advisory aspects of clinical epidemiology and Evidence-based Veterinary Medicine. Her goal for EBVM is to provide evidence from population-based studies to support veterinary decisions. Her current research interests are to apply epidemiological techniques to 'get the most' out of practice data. Mirjam Nielen was trained as a veterinarian in Utrecht (1987). She shortly worked in general practice, but wished to specialize. She focused on bovine herd health and defended her PhD thesis on mastitis detection (1994). Next she worked on decision support models for control of infectious diseases at Wageningen University. She returned to Utrecht (2002), where she worked as a clinical epidemiologist on many veterinary relevant issues.

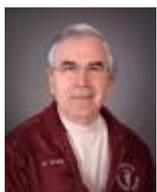
Vaccination of dairy goats against Q-fever to protect the general human population: evidence from the Dutch context. Q fever vaccination worldwide: Netherlands - vaccination of goats to prevent disease in humans; France- vaccination of cattle to prevent economic losses due to abortions; Australia: vaccination of humans at risk by occupation. Number of notification is around 20 notifications/yr in The Netherlands, sporadic, often occupational.

In small ruminants (in 2009), Q-fever vaccination effect was studied and the results showed less abortion as a clinical behavior and less susceptibility and infectivity on the infection process.

In order to quantify the effect of vaccination on prevalence and bacterial load, sampling at rendering plant, in uterine fluid, vaginal mucus and milk of culled pregnant animals were examined and results showed that: prevalence and bacterial load reduced in vaccinated animals and effects were most pronounced in animals during their first pregnancy.

Herd health management perspective: common infection in ruminants, usually asymptomatic; vaccination in response to disease problem; individual strategy per farm by farmer and veterinarian.

Public health perspective: outbreak in the general population; precautionary principle; preventive vaccination in goats; vaccination obligatory.



George Stoica, received DVM degree from College of Veterinary Medicine, Institute of Agronomy, Iasi-Romania in 1966, my master degree in pathology in 1982 from Ohio State University and PhD degree in 1984 from Michigan State University. Since 1984 he was Assistant Professor (1984-1990), Associate Professor (1990-1996), and Tenured Professor (1996-present) at Texas A&M University Department of Veterinary Pathobiology. His major research interest is in oncology and neuro-degeneration.

Motor Protein Myosin 5A Mutation in Neurodegeneration. Myo5A regulates organelle transport in both melanocytes and neuronal cells (highly expressed in neurons)'. Is highly expressed in the central and peripheral nervous system, Myo5A is a motor protein that is involved in local, actin-based organelle transport. In Purkinje cells Myo5A appears to be involved in transport of smooth endoplasmic reticulum into the spines.

Myo5a mutations cause pigmentation and neurological defects in humans and animals.

Results of the studies revealed the following: Myo5a mutation affects the nigrostriatal dopamine system, mechanisms of degeneration of axons are separate and distinct from those of neurons, nigrostriatal terminal dysfunction and degeneration is an early event that precludes the neuronal loss, "Dying back" neuronal degeneration is a dominant feature in many neurodegenerative disorders, a-Syn modulates the phosphorylation of axonal tau affecting the stability of microtubules (propose) and that axonal degeneration provides novel therapeutic targets.

The proposed future research directions are: continue to explore genetic alterations responsible for disease; understanding the functions of myosins in neurons is significant for molecular mechanisms at synapses and their plasticity; identify proteins/myosins interactions for developing disease-modifying therapies; explore the potential involvement of Myo 5A genetic alteration in human neurodegenerative disorders such as: Parkinson's, Alzheimer diseases and others and understanding neuronal functions of myosins help explain how these motors contribute to brain function in health and neurological disorders.

Plenary Session V was moderated by **Arturo Anadon** and **Nastasia Belc** and consisted in two paper presented below.



Arturo Anadon, Full Professor and Head of Department of Pharmacology and Toxicology, University Complutense of Madrid Doctor in Veterinary Medicine (DVM), Complutense University of Madrid (UCM), Spain. Philosophy Doctor (Ph.D.) (Cum Laude) in Toxicology and Pharmacology, UCM, Madrid, Spain

Master in Basic Pharmacology, Faculty of Medicine, UCM, Madrid, Spain. EBVS European Specialist in Veterinary Pharmacology and Toxicology. Member of the European College for Veterinary Pharmacology and Toxicology (DipECVPT). European Registered Toxicologist (ERT). Fellow of the Royal College of Surgeons of England, London, UK. Fellow of the Real Colegio Complutense at Harvard University, Cambridge MA, USA.

Full Professor at Department of Pharmacology and Toxicology, UCM (Spain). Expert of the European Medicines Agency (EMA). London, U.K.

Expert of European Food Safety Authority (EFSA). Member of the Expert Advisory Panel on Food Safety at the WHO, Geneva, Switzerland.

Consultant of the Organization of American States.
 Membre Associé Etranger de l'Académie Vétérinaire de France. Foreign Corresponding member of the National Academy of Agronomy and Veterinary Science, Argentina. Foreign Corresponding academician of Colombian Academy of Veterinary Sciences, Colombia.
 Corresponding member of the National Academy of Veterinary Science. Ministry of Education and Culture, Eastern Republic of Uruguay.
 Corresponding member of Mexican Veterinary Academy A.C.
 President of the Royal Academy of Veterinary Sciences of Spain.

Professor Arturo Anadon had presented the paper entitled **Foodstuff safety in relation with animal treatments.**



Nastasia Belc, PhD, is General Director of National R&D Institute of Food Bioresources - IBA Bucharest, Associate prof. at the University of Agronomy Science and Veterinary Medicine-Bucharest, Faculty of Biotechnology. Nastasia Belc is member of the Romanian Academy of Agricultural and Forestry Sciences and member of Consultative Council of The Ministry of Research and Innovation. She is member of Scientific Council of National Sanitary Veterinary Authority and Food Safety (ANSVSA). She is also member of Governing Board of Joint Programming Initiatives "Food Agriculture and Climate Change" and member of Management Board of "Healthy Food for a Healthy Diet". As background, she is food scientist, with expertise in food safety, nutrition and food biotechnology.

Food as a mean to prevent diseases. The main role of the diet is to provide sufficient nutrients to meet an individual's nutritional requirements.

There is now an increase in scientific evidence to support the hypothesis that some foods and food components have physiological and psychological benefits in addition to providing basic nutrients.

Today, nutrition science has advanced from the classic concepts of avoiding nutritional deficiencies and basic nutritional adequacy to the concept of "positive" or "optimal" nutrition.

The focus of research has shifted more to identifying biologically active components in foods that have the potential to optimize physical and mental well-being which can reduce the risk of illness.

Many traditional foods, including fruits, vegetables, soybeans, whole grains and milk, have been found to contain ingredients with potential health benefits. In addition to these foods, new foods are developed to improve or incorporate these beneficial health-promoting ingredients or desirable physiological effects.

The last round table, **Round Table III** was chaired by **George Griffin** and **Mircea Penescu**. The discussion was focused on the **Application of avian proteins in infections caused by antibiotic-resistant germs**.

The last plenary session, **Plenary Session VI** was moderated by **Simin Florescu**

Mircea Nicolae Penescu



Doctor of Internal Medicine, Primary Nephrologist, Manager of Clinical Nephrology Hospital Dr. Carol Davila, Head of Department of Internal Medicine and Nephrology, Clinical Hospital Dr. Carol Davila, UMF Dr. Carol Davila Bucharest, Doctor of Medicine, founding member of the Romanian Nephrology Society (since 1994), founding member of the Romanian Kidney Foundation (since 1996), member of the Management Committee of the Romanian Kidney Foundation, member of the Management Committee of the Romanian Society of Nephrology, editor-in-chief of Nefrologia journal (since 2006), member of the International Society of Nephrology, member of the European Renal Society (ERA-EDTA), president of the Medicine and Music Foundation since 1997



Ionel Victor Pătrașcu, Ionel Victor Pătrașcu MVD, PhD president of Activeimmunity. (A film was projected as Dr. Pătrașcu could not attend due to health issues).

Graduated in Veterinary Medicine in Bucharest in 1963. Researcher in the field of virusology at Pasteur Institute in Bucharest. Made different specializations in the field of avian and human oncogenic viruses at Houghton Poultry Research Station, Huntington, England, at Friedrich-Loeffler- Institute, Celle, Institute of Animal Pathology in Rotterdam, Netherlands, Cornell University Ithaca NY and Athens University, Athens, GA. USA. In 1971 discovered to extract Fc 126 cell associated as cell free in SPGA and allowed to freeze-dry vaccine anti Marek disease lymphoma. He made the first research Center in the world at Voluntari, Romania, called Avian Tumor Viruses Lab, where specialists from England, U.S., France, Bulgaria, the German

Democratic Republic, Hungary, the USSR, and China came to do studies in the period of the Iron Curtain and communist politics from Moscow. In 1989's the largest outbreak in the world of HIV-1 infection and AIDS in children in Romania (Lancet 1990, 335, 672). He studied antibiotic resistance of microorganisms and made first immunogen I-PC2 used biological preclinical and clinical human studies and the second generation of immunogen I-spga that was managed to prepare IMUNOVIP able to react specifically with superbugs infection by oral treatment of antibiotic-resistant urinary tract infections in women. During 1965-2017 he dealt with the training of specialists who are now valuable researchers, professors and academics.

Active immunity by passive immunity. A new approach for immunological therapy

The paper is launching patented technologies for the development and production of a range of products dedicated to immunological therapies as well as obtaining immunologically active proteins of avian origin that can provide exceptional nutritional/functional qualities to already existing products on the market with the ultimate goal of improving the quality of human life.



It concerns industrial production of Purified suspension of Ig-Y immunoglobulin and Ovotransferrin, as well as lyophilized whole egg powder (egg with immunologically active content) or powder obtained from its components, e.g. white, yolk, membranes, shells.

The egg with immunologically active content is obtained by immunizing the hens with an inoculum prepared from bacterial antigens. These antigens consist of a mixture of inactivated bacterial strains isolated from patients (antibiotic-resistant strains).

Following immunization, specific antibodies are formed in the hen body, that are transferred and accumulated in both the yolk and the white. The egg proteins thus obtained show unique biological activities.

February 27, 2017: For the first time ever, the World Health Organization has drawn up a list of the highest priority needs for new antibiotics — marching orders, it hopes, for the pharmaceutical industry.

Three bacteria were listed as critical:

- Carbapenem resistant - *Enterobacteriaceae* (CRE)
- Methicillin-resistant - *Staphylococcus aureus* (MRSA)
- ESBL producing *Enterobacteriaceae*(extended-spectrum β -lactamases)
- Vancomycin-resistant *Enterococcus* (VRE)
- Multidrug-resistant *Pseudomonas aeruginosa*
- Multidrug-resistant *Acinetobacter*
- Multidrug-resistant *Candida auris*

New Patent, 2017-Composition and Method of Preparing and Evaluation of a Complex Immunogen I-Spga for Chicken Immunologically Active Proteins Production (CIAPs- IgY immunoglobulins, Ovotransferrin, Lysozim,

Ovomucin, Ovalbumin):

- New concept of prevention and treatment of infectious diseases and immune deficiency
- New antigen structures
- New immunogens: multi and poly
- Standard active immunologic proteins
- Personalized active immunologic proteins

Range of biologically active products indicated as adjuvant in the treatment of immune deficiencies such as, but not limited to: *Epidermolysis bullosa*, *Vulgar psoriasis*, cytostatic post-treatment immune deficiency, treatment of *Staphylococcus aureus* MSSA and MRSA infections, treatment of nosocomial infections with *Clostridium difficile*, treatment of urinary infections in children and adults, treatment of digestive infections and/or other organs and tissues with sensitive or antibiotic resistant germs and treatment of dermatitis.

Biologically active ingredient to be added in products from various industries (food industry, pharmaceuticals, cosmetics, animal nutrition).

Food Industry: The egg, or the elements of the egg, as a dietary supplement, may be used as an autonomous or secondary ingredient in existing food formulations, with proved impact in the following fields:

- Role of natural preservative with impact on the increase in product shelf life due to antibacterial properties;
- Maintains the balance of the intestinal flora;
- Supports the immune system;
- Increases athletic performance by reducing muscle inflammation after exercise;
- Supports prolonged resistance to effort by favoring oxidative metabolism;
- Supports the proper functioning of the cardiovascular system by increasing the performance of the cardiac muscle and prevents deposits of a the romatous plaques on the vessels, increases vascular endothelium.

Cosmetic Industry: Addition of active immune-proteins and egg white peptides in cosmetic products support the protection, restructuration and regeneration of the skin, with visible effects in what regards the reduction of wrinkles, maintaining the firmness of the skin. CIAP in cosmetics may be considered an adjuvant in revitalizing and maintaining skin trophic by supporting the healing effort of various dermatological conditions, determining the maintenance of the skin health.

Pharmaceutical Industry: Through the immunologically active protein complex, the product stimulates the natural immunity of the body, which increases the body's resistance to pathogens, the favorable rebalancing of the pathogen/sanogenic ratio, thus favoring the development and maintenance of a healthy microbe and reducing the inflammatory response throughout the body. The complex supports the body in the process of recovery from a condition determined and maintained by a suppressed immune system. Activeimmunity products can be used in combination with drugs as it does not interact with them, but a potency of the effect of drugs being observed.

Activeimmunity products are a natural and effective solution in antibiotic resistance supporting the fight against pathogens.

Animal Nutrition: Excerpts (in various forms) from eggs containing immunological active proteins may be added in animal food purposed as a support for the natural immunity of the animals, enhancing their resistance to pathogens.

Brands for next generation: Immuno-CIP(topical products: creams, gels, lotions)&Immuno-VIP(products for oral use: raw or lyophilized egg)

The products are made from whole egg, or only from yolk, white, containing CIAP components (IgY, ovotransferrin, ovomucin, ovalbumin, lysozyme).

Chicken Immunologically Active Proteins (CIAP):

- in the yolk: Polyvalent specific immunoglobulins (IgY);
- in the white: immunologic active avian proteins (PI-2A), among which, the most important are: ovotransferrin, ovomucin, ovalbumin and lysozyme and different other immunomodulators, bone growth factors, cell growth factors, anti-inflammatory factors, different types of immunologic active peptides;
- in the chorioallantoic membranes: cicatrising factors, anti-inflammatory factors, bone growth factors, cell growth factors, ovotransferrin, ovomucin, ovalbumin and lysozyme;
- eggshell: it contains calcium carbonate crystals – that are easily assimilated and all the components present in the chorioallantoic membranes in a total quantity 3%.

Immunoglobulin Y is very similar to imunoglobulin G.

There are a few differences: IgY has a higher molecular mass (180 kDa) - additional heavy chain constant region and IgY has a smaller hinge region which makes the molecule more rigid than the human IgG

The advantages of using IgY and immunologically active proteins as adjuvants to antibiotics are: they are obtained in a non-invasive way (from chicken egg); the quantity of antibodies produced and transferred in the hyper immune egg is larger than the quantity obtained from any mammal of the same size; IgY have higher affinity than mammal Ig for the same antigen; IgG do not react with the complement, proteins A or G or the rheumatoid factor; There is no cross-reactivity with human IgG; There have not been any reports of bacteria developing resistance against the product; They are very stable(30 -70 °C, la pH 3,5-11) and have a long shelf life. There are no reports of interactions with drugs

The last plenary session, **Plenary Session VI** was moderated by **Simin Florescu**



Simin Florescu, Medical director since 2011, Primary infectious disease physician, associate professor University of Medicine, Bucharest, Carol Davila

Coordinate the medical activity in the Clinical Hospital for Infectious and Tropical Diseases "Dr. Victor Babes"

Member of the editorial committee of the Romanian Journal of Infectious Diseases;

	Member of the Romanian Society of Infectious Diseases Member of the European Society of Travel Medicine
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	<p>Ștefan Lazăr, Dragoș- Ștefan Lazăr, MD, PHD, Assistant Professor at Carol Davila University of Medicine and Pharmacy – UMF CD. He was graduated at the "Carol Davila" University of Medicine and Pharmacy, specializing in infectious diseases at the "Victor Babeș" Clinical Hospital of Infectious and Tropical Diseases. He is the chief physician in the Children's Infectious Disease Clinic and has obtained a PhD in hepatitis C and HIV. He is the author or co-author of several scientific studies and has participated as a senior member or investigator in several clinical trials or research projects in chronic hepatitis or infectious diseases.</p>
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Evolution of hospitalized zoonoses in the last decade in the “Dr. Victor Babeș” hospital for infectious and tropical diseases, Bucharest

Different ways of transmission were discussed and the incidence of Leptospirosis in VBH, Anthrax in VBH, *Salmonella* spp. *enterocolitis*, *Campylobacter enterocolitis*, Trichinosis in VBH, *Taenia solium*, Echinococcosis in VBH, Boutenneuse fever in VBH and Lyme Disease in VBH.

Zoonotic infectious diseases are an important part of our clinical practice as infectious disease clinicians.

Imported zoonosis play an important role, as potential emergent or reemergent diseases in our area, in the context of globalization and climate warming. One health approach is the main way of controlling this problem.

POSTERS

Authors	Title
Corina Bistriceanu, Cristina Gârlea, Cornelia Marin, Cristinel Sonea	The meaning of the word “Healthy” in <i>One Health</i> approach

	<p>Cornelia Marin PhD, specialist at the Climate Change Department of the National Agency for Environmental Protection. She was graduated in 1984 in University of Bucharest, Geology Geophysical Faculty; in 1999 she was graduated at the University of Bucharest, Faculty of Law. She obtained PhD in Geology at the University of Bucharest, Geology Geophysical Faculty. She has participated in over 10 projects, among which "Risk Phenomena on the Danube and the Danube Meadow" within the The Association</p>
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"Center for Environmental Studies and Research", The "Right to a Clean Environment" Project financed by Phare.
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The meaning of the word “Healthy” in *One Health* approach. How health is perceived depends on a number of factors. Whether we are talking about the state of the individual (the degree of self-confidence and confidence in the medical system), the level of medical development or regional culture, we will have the opportunity to encounter different ways of perception. How attitude contributes to achieving health is an interesting issue to address.

More often than not, a correspondence between the socio-economic status of the person and his/her health is created. This relationship causes some subjects to a priori consider themselves as belonging to the group of the sick or, on the contrary, to the group of healthy people. How real this approach is and what elements can dismantle it are questions that a study should answer.

This paper aims to be the starting point of broader multilevel study regarding the way in which health is perceived by both individuals and authorities.

Authors	Title
Emilia Balint, Iuliana Codreanu, Radu Anghel, Nicolae Manolescu	The relationship between animals, humans and the environmental stress syndrome
<p>The authors present the results of a study on a sample of 10 cats accommodated for 10 days in a specially designed cat hotel.</p> <p>During this time, with the help of video cameras, the behavioral changes were recorded by making individual daily ethograms. The variation in haematological, biochemical and serologic parameters were also determined on day 1, 5 and 10.</p> <p>The results obtained have shown that stressful factors such as: separation from the owner, changing the living space and cohabiting with other felines are responsible for inducing the stress syndrome followed by the adaptation syndrome described by Hans Selye, the father of stress in humans.</p>	
Alexandra Trască, Nicolae Manolescu, Emilia Balint	Canine and feline oncology, fundamental elements of <i>One Health</i> principle
<p>The authors reviewed 916 canine and feline oncology cases examined by two specialists: Professor Univ. Dr. Nicolae Manolescu and Conf. Univ. Dr. Emilia Balint, between 2007-2017.</p> <p>Although this cases were the subject of many scientific papers, and even led to the creation of an onco-cytomorphological atlas awarded by the Romanian Academy, we still found it useful to inventory the oncologic</p>	

diagnosis and divide them according to the cytomorphic forms of cancer and their qualitative expression. The study is a first phase of Alexandra Trasca's PhD thesis and will underpin future research.

Marius Stănescu, Adrian-Bogdan Popescu, Radu Zubaci, Adrian-Simona Ionescu

Updates in lower limb prosthetics, a comparative view of the human and canine models

The aim of the present paper is to illustrate the evolution and the present-day context regarding the implant models and surgical techniques used in lower limb (hip and knee) arthroplasty both inhuman and canine models. The continuing development of endoprosthesis technology helps to improve the already available solutions and develop newer ones in terms of recovering mobility and improving the quality of life for both human and canine patients. The first and foremost goal of the evolution of technology in this domain is to achieve a superior design that imitates the genuine characteristics of the affected joints in order to better integrate with the anatomical structures of the patients.

Stefania-Adelina Milea, Gabriela Răpeanu, Gabriela-Elena Bahrim, Nicoleta Stănciuc

Yellow onion skins: a possible source for positive health effects

The aim of our study is to explore the functionality of flavonoids from onion wastes, especially yellow onion skins. Onion wastes contain high concentrations of flavonoids and could be considered as a valuable candidates as ingredients in various food products, nutraceutical, pharmaceutical, medicinal and cosmetic applications.

It is well known that yellow onion is used as a major vegetable crop worldwide. Consequently, more than 500,000 tons onion by-products are produced annually in EU. Thus, utilization of the onion skins can be a possible solution inside of environmental problems.

Quercetin has a typically flavonoid structure and contains five hydroxyl groups. Quercetin widely exist in onion, tomato, lettuce, caper, black chokeberry, usually in a bound form with sugars.

Yellow onion skin is a rich source of quercetin, kaempferol and myricetin derivatives. Flavonoid level from onion skin is nearly 2-10 g/kg and is higher than other parts of onion. Within the vegetable family, the composition and quantity of the phenolics vary significantly according to different intrinsic and extrinsic factors, such as plant genetics and cultivar, soil and growing conditions, maturity state and harvest conditions. Recent studies are focused to the antioxidant content of onion because epidemiological studies indicate a correlation between the regular consumption of onion and a reduced risk of neurodegenerative disorders, many forms of cancer, diabetes and cardiovascular diseases. Antioxidants can scavenge radicals by three major mechanisms: hydrogen atom transfer, electron transfer, and combination of both these transfers. Oxidative stress, which is the main responsible for many problems, can be eliminated or reduced by consuming natural food containing

biological active compounds.

Nowadays, one of the major concern is to improve the life quality by creating value-added products. One of the objectives of this study is based on the development of a functional food ingredient based on flavonoids from yellow onion skins. These natural compounds are gaining popularity because they provide more health benefits than synthetic antioxidant which have numerous health hazards. Furthermore, they are safer than synthetic dyes due to the fact they give natural pigments to food products.

Flavonoids are considered to be the most representative compounds with protective actions in autoimmune pathologies. They become important candidates for the development of novel anti-inflammatory drugs. Consequently, they may be helpful for the researchers and industry in the production and development of safe health-promoting agents from natural sources.

Besides all those benefits of quercetin, there is a real concern regarding its phenolic structure. Thus, flavonoids are easy degradable because of their sensibility to many factors. Also, they undergo degradation during digestion, resulting low absorption and low bioavailability. Therefore, a method involving the protection and a controlled release of bioactive compounds could be their encapsulation in some complex matrices.

From this research, it could be concluded that there is a real option of using those yellow onion skins for obtaining natural ingredients with bioactive characteristics.

ACKNOWLEDGEMENTS. This work was supported by the project "EXPERT", financed by the Romanian Ministry of Research and Innovation, Contract no. 14PFE/17.10.2018.

Nina-Nicoleta Condurache, Gabriela Rapeanu, Gabriela-Elena Bahrim, Nicoleta Stanciuc

Anthocyanins from food by-products as alternative for synthetic additives? A big challenge for food and related industries

Anthocyanins are secondary plant metabolites responsible for the red, blue or purple colors in plants. Their role in plants is not just to give color, but also they act as a protective mechanism against environmental stress factors like UV light or temperature changes. These compounds are one of the largest group of flavonoidic compounds, which are a subgroup of polyphenols. Nowadays, they present a great interest because of their possibility of use and their abundance in fruits, vegetables, grains and flowers.

Since food industry generates annually a large amount of food by-products rich in biologically active compounds, in the last years, the recovery of these compounds was attempted from pomaces, seeds, peels, pulps or husks. A food by-product that deserves attention is the eggplant peel that is rich in these compounds. The aim of our present study is to probe the possibility of using the anthocyanin-rich extract from eggplant peels as functional ingredient in order to be used in food, nutraceutical or even in cosmeceutical applications.

In food industry, anthocyanins are used as natural enhancers for the organoleptic quality of foods, but also as antimicrobial and antioxidant agents, which gives them beneficial health effects on the human body. The health

effects provided by the consumption of anthocyanins were analyzed during multiple experiments *in vitro* and *in vivo*. These studies have showed inhibitory effects on some cancer cells. Also, an anthocyanins intake seems to be related with the risk factor reduction of cardiovascular events, neurodegenerative disorders or diabetes disorder.

The antimicrobial activity of anthocyanins have multiple mechanisms of action, one of them consisting in the interaction between the -OH groups and the cell membranes of bacterias. That interaction produces a disruption of proteins and lipids structures, helping the binding of the active site of enzymes with the substrates, turning them unavailable for microorganisms. Multiple studies reported an inhibition of the growth of Gram-positive and Gram-negative bacteria generated by these compounds.

The anthocyanins show a great potential when it comes to inhibiting oxidation in foods. They act as free radical scavengers, they are good reducing agents and excellent synergists to other antioxidants. The mechanism of scavenging free radicals acts by donating a hydrogen atom from a -OH group or an unpaired electron. The presence of -OH groups in position 3 of the C-ring and in positions 3',4' and 5' in ring B, gives them a great antioxidant activity. Therefore, the delphinidin (major anthocyanin in eggplant peel) seems to be the most potent antioxidant in the group of anthocyanins, considering the structure.

Despite all the advantages that the anthocyanins provide, they are very sensitive to physical and chemical conditions. They can be degraded during their extraction, food processing, storage, or digestion. That's why, for increasing their bioavailability, they should to be encapsulated before being used.

Acknowledgements. This work was supported by the project "Excellence, performance and competitiveness in the R&D&I activities at "Dunarea de Jos" University of Galati", acronym "EXPERT", financed by the Romanian Ministry of Research and Innovation, Programme 1 – Development of the national research and development system, Sub-programme 1.2 – Institutional Performance – Projects for financing excellence in R&D&I, Contract no. 14PFE/17.10.2018.

Dragos-Constantin Coman, Adrian-Stefan Dumitru, Nicolae Manolescu

Persistent lymph node stimulation – a possible release factor for lymph node cancer

Knowledge the fundamental processes of immunological defense represent a "stone" of resistance in the understanding and interpretation of cancerous disease.

In the present study we intend to investigate the preneoplastic pathology of peripheral hematopoiesis, respectively the lymph nodes structures, because these hematopoietic organs are involved in the majority of pathological processes at the body level. Thus, part of the lymph node pathology only concerns lymphoid tissue, as is the case with primitive lymph node disease, and the other part results as a consequence of prolonged hyperstimulation induced by pathology of parenchymal organs or mesenchymal tissues that induce an echo at the lymph nodes, nearby or at distance. These persistent and long-lasting stimulations may, in some cases, can

lead to the transformation of reactive lymphoid hyperplasia into leukemic or tumor neoplasms as we will present in this study in which we made a complete lesion film describing phased cytomorphological changes, gradually, the lymph node populations beginning with persistent chronic inflammation, then continuing with simple lymphoreticular hyperplasia, lymphoreticular hyperplasia aggravated and in the ending, with malignant pre-lymphoma.

The importance of this study stems from the fact that the veterinary inspection at the slaughterhouse is of paramount importance for the health of the human society consuming meat. For this strategic reason, this paper alerts the authorities involved in the meat industry to detected the animals with precancerous and cancerous lesions, such as malignant pre-lymphoma and *vera* malignant lymphoma, in our case, known that they cause major imbalances in whole body metabolism. And last but not least, we want to involve the veterinary surgeon in the current application of lymph nodes cytomorphological techniques which is of great value for ensuring the highest salubrity of meat given to human consumption.

Ana-Maria Coman, Cristinel Sonea, Nicolae Manolescu	Cythemorphological modifications of hematopoiesis as signaling element of the possibility of neoplastic transformation
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Wishing to elaborate a special topic, in the field of comparative oncology, a basic part of the new global medical concept *One Health*, together with the modern founder of comparative oncology and the supporter of this concept in Romania, we intend to develop the "cytomorphological bases" of the possible transformation of haematopoietic tissues, which suffer, in a chronic way, the aggression of a hyper-antigenicity that mutagenic compromises the structural immune system (SCI), in the long term, opening the way for malignancy of these tissues. In our case, this persistent antigenic stimulation was induced by a massive infestation with *Echinococcus granulosus*, *Strongylus* sp. or *Fasciola hepatica* in the equine and ovine species. Thus, following this study, we managed to develop dynamically an „authentic morpho-cytological film”, identifying, to the lymph nodes, the characteristics of simple lymphoreticular hyperplasia, aggravated lymphoreticular hyperplasia and malignant pre-lymphoma. We also identified the cyto-morphological changes in the hematopoietic marrow through the existence of two distinct lesions: 1 - an intense proliferation of cells with eosinophilic granulations, and 2 - an intense proliferation of supporting and "nurse" cellularity within the reticular system. At the blood level, 50% of the cases had marked lymphocytes, with a percentage of more than 75% of lymphocytes in total circulating leukocytes, and 10% of the total circulating lymphocytes were blastic elements with a certain degree of anaplasia.

Nicolae Craciun, Maria Teodorescu	Trends and solutions towards sustainable life, science, food and environment
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Viorel Andronie, Ileana Pitoiu, Ioana Andronie	Antimicrobial Sensitivity of bacterial stains from milk dairy cows
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Marcel Theodor Paraschivescu, Marcel Paraschivescu, Dumitru Georgescu, Cristina Garlea	Building a zero hunger generation in a veterinary vision
Cristina Garlea, Ioana Toma, Gyuri Deak, Mariana Pipirigeanu	Environmental risks due the dangerous wastes
SRIL, PhD Matiuți Marcel, Diaconescu Denis, Șonea Cristinel Gigi	The integration of animal science technologies in the circular bioeconomy.
Study carried on animal welfare practices in Banat's Romania animal units.	

Conclusions:

1. General remarks

The "One Health" concept requires the synergism of human, animal, plant and environmental health, and is being adopted in the last 3-4 years by the world's and EU main organizations, UN, WHO, FAO, OECD so on, as an operational tool to meet the major societal challenges addressing Health as more and more diseases with uncontrolled developments and super-intelligent bacteria bio-resistant antibiotics.

More than ever, an effective cooperative action of specialists is needed. Cooperation now between human medicine and veterinary medicine, environmental specialists, those in the fields that conditioning health, such as nutrition, agriculture, bio-economy, bio-security, etc., but also from advanced technical areas, is needed to find the best solutions for a safe, health, and comfortable future.

2. European One Health Conference 2019. Objectives and Development.

The conference aimed to strengthen the One Health Global Concept in Health Promoting and has been noted as a prestigious European scientific event of the year focused on the Health of Humans, Animals, Plants and the Environment.

The conference was organized under coordination of the European Federation of Medical Academies (FEAM) and the Academy of Medical Sciences of Romania (ASM), with the participation of the UNGSII Foundation, which develops UN projects within the Sustainable Development Strategy 2030 and under auspices of the Government Romania.

It has been noted the noteworthy logistic and organizational support provided by *Spiru Haret* University as well

and the One Health New Medical Concept Association.

The conference brought together, especially at the FEAM initiative, great personalities from Academies, Universities, Research Institute, etc., from abroad and from Romania.

High level scientific papers have been presented offering new, concrete solutions and new directions in applying and capitalizing the One Health Concept.

3. Conclusions and next steps

At the end of the Conference, FEAM's board set out the following actions and directions in view of promoting and implementing the One Health Concept:

- a. The FEAM will submit to the EU Commission the Conference Report and a document with measures for a coherent implementation of the One Health Concept in Education, Research and Development in the Medical, Economic and Social fields.
- b. Setting up the One Health European Network under the coordination of FEAM, as a tool for best practices sharing and experience exchange, a Platform for gathering knowledge and strengthen partnerships between FEAM members and these one and other EU and international organizations. The Institute for Comparative Medicine One Health of Medical Sciences Romanian Academy and *Spiru Haret* University, Bucharest will have the responsibility for the organizing and active functionality of this network.
- c. Elaboration and implementation of a One Health European Program under the FEAM coordination for a financial support. The program will be proposed by The Institute for Comparative Medicine One Health of Medical Sciences Romanian Academy.
- d. Involvement of students and increasing the role of education in promoting, learning and applying the One Health Concept as a new culture and a new attitude towards a healthy an friendly environment.



Paper title	Covered domains						
	Health		Veterinary	Food	Environment	Specific Level	
	AMR	Other				National	International
EC Strategic approach on Pharmaceuticals in the environment					x		x
OECD strategy on pharmaceutical in the environment and AMR. Sources of pharmaceuticals in the environment	x				x		x
Multi-drug resistance as a growing global problem and its clinical impact		x					x
The environmental dimensions of AMR – industry perspective	x				x		x
Antibiotic resistance in a global <i>One Health</i> perspective; a personal experience from Vietnam	x						x
Antimicrobial resistance: A <i>One Health</i> approach in ESKAPE pathogen	x						
Bacterial Antibiotic Resistance in Romania	x					x	
Antimicrobial susceptibility of equine clinicals isolates from France (2006-2016)			x			x	
Future Biomedicine and EBTNA	x						x
Proposals for the structure of the One Health European mega-program						x	x
Veterinary oncology: past, present and future			x				
European Union funded research projects on Zoonoses, added value of the One Health approach			x				x
Academic approach of major risk in environment					x		
MgB ₂ based materials for the improvement of life quality					x		
The SPILLOVER program: looking for unknown zoonotic viruses by exploring animal reservoirs-human interfaces using wide range agnostic detection techniques		x	x				
Vaccination of dairy goats against Q-fever to protect the general human population: evidence from the Dutch context			x			x	
Motor Protein Myosin 5A Mutation in Neurodegeneration		x					
Foodstuff safety in relation with animal treatments			x	x			
Food as a mean to prevent diseases				x			
Evolution of hospitalized zoonoses in the last decade in the “Dr. Victor Babes” hospital for infectious and tropical diseases, Bucharest		x				x	
Total	6	4	6	2	5	5	8