

2nd International Electronic Conference on Metabolomics

20-27 November 2017
chaired by Dr. Peter Meikle

sponsored by



metabolites

Nutrimetabolomics – a tool for humans and animals health management in One Medicine concept

**Ionela Hotea*, Olimpia Colibar, Iuliana Popescu, Robert Compodi and
Isidora Radulov**

Affiliation: Banat University of Agricultural Science and Veterinary Medicine „King Michael I of Romania”,
Calea Aradului, no. 119, 300645, Timisoara, Romania

- Corresponding author: ionelahotea@gmail.com



Nutrimetabolomics – a tool for humans and animals health management in One Medicine concept

Metabolomics and Nutrimetabolomics...

... in Human Medicine

... in Veterinary Medicine

... in One Medicine context

Conclusions

References



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

Abstract:

The field of metabolomics is still under development, but it has an increased capacity for research applications, especially in the areas of nutrition and health. The relationship between nutrients and the organism's functionality has increased the interest for nutritional metabolomics research. Nutrimental metabolomics, is thus, more and more used for analyzing the correlation between dietary intake and disease occurrence. On the other hand, metabolic fingerprinting can help in understanding and development of personalized nutrition, which could contribute to the improvement of health status, well-being, animal growing or food security. The very close cohabitation of humans with animals, either for raising livestock for food, or as pets, makes most of the diseases known in medical sciences to be common to humans and animals. This makes nutrimental metabolomics be the key tool for confirming the medium-animal-human relationship in order to achieve global unitary health. So, the aim of this review is to highlight the importance of nutrimental metabolomics as the main tool in both human and veterinary medicine research.

Keywords: nutrimental metabolomics; health; nutrition; animals; medicine



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

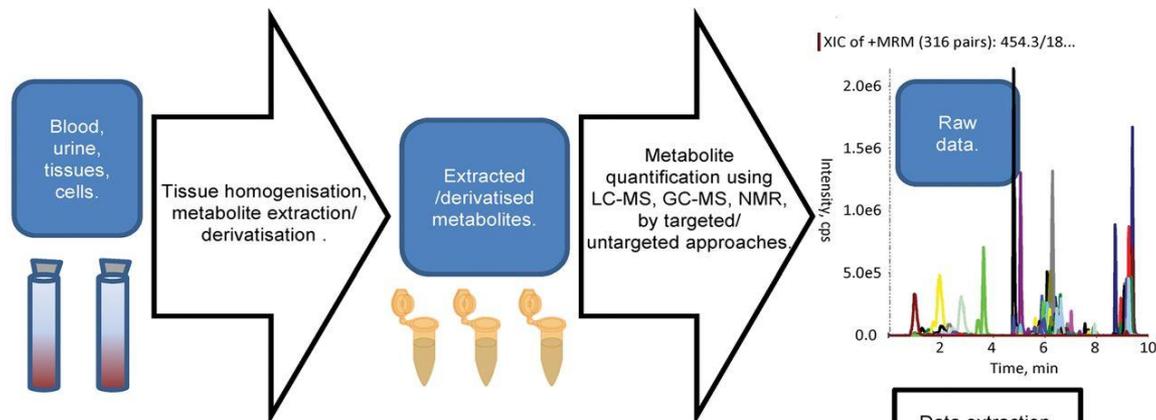
sponsors:



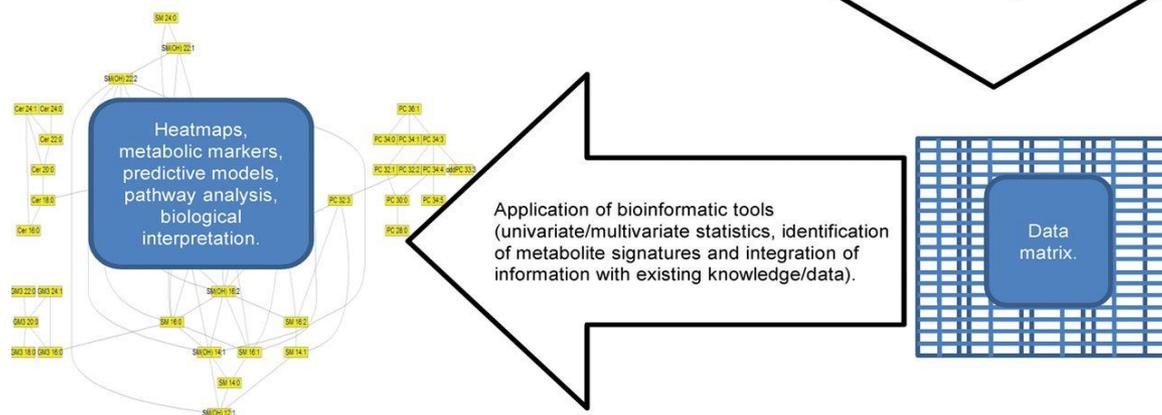
metabolites

Metabolomics

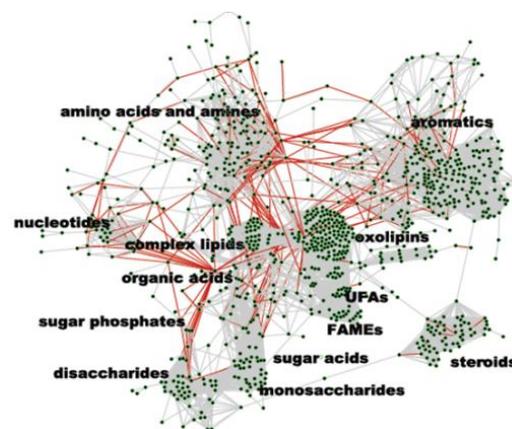
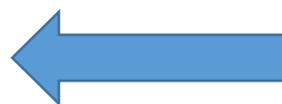
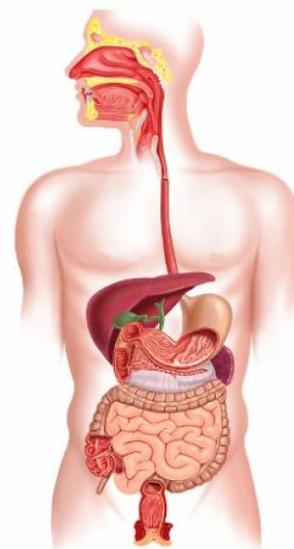
Sample collection/processing & metabolite measurement



Metabolomic data processing & analyses



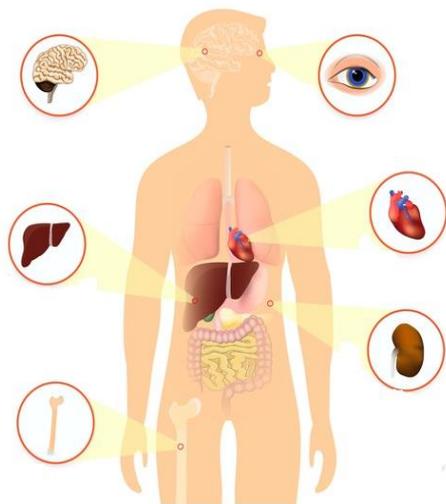
Nutrimetabolomics



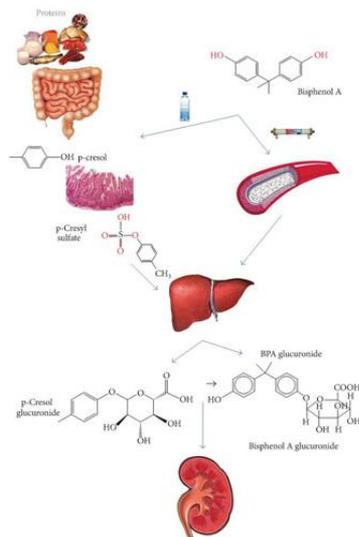
Nutritional status

Metabolites

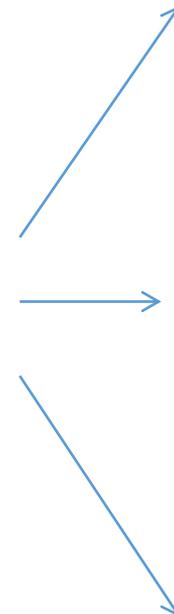
... in Human Medicine



Human diseases



Metabolic profile



Diagnostic biomarkers

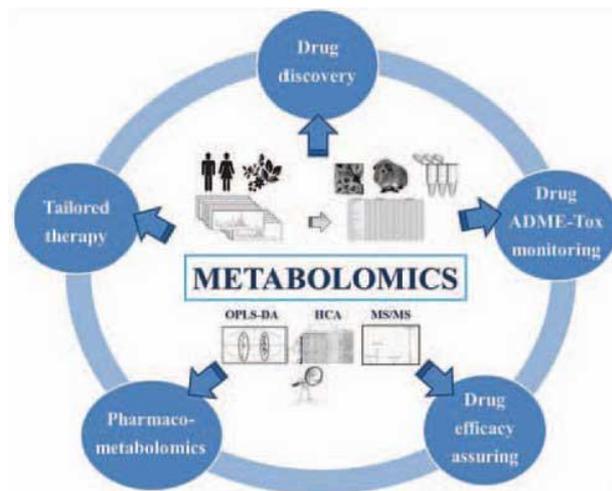
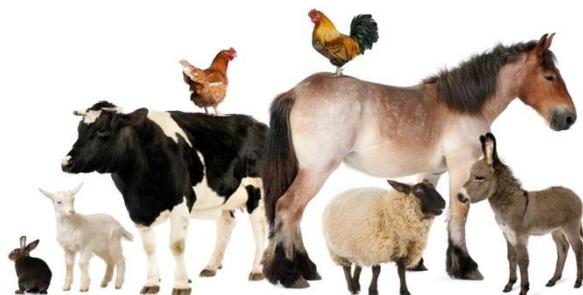


Personalised treatment



Personalised nutrition

... in Veterinary Medicine

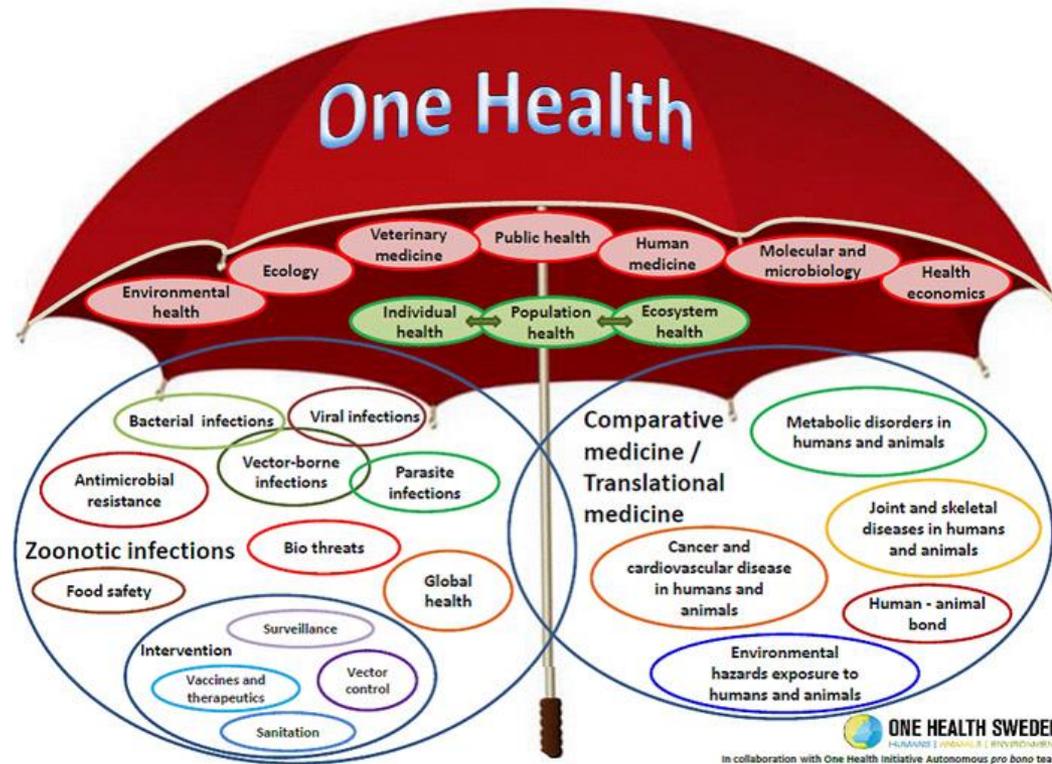


Animal welfare



Increased production

... in One Medicine context



One World - One Medicine - One Health



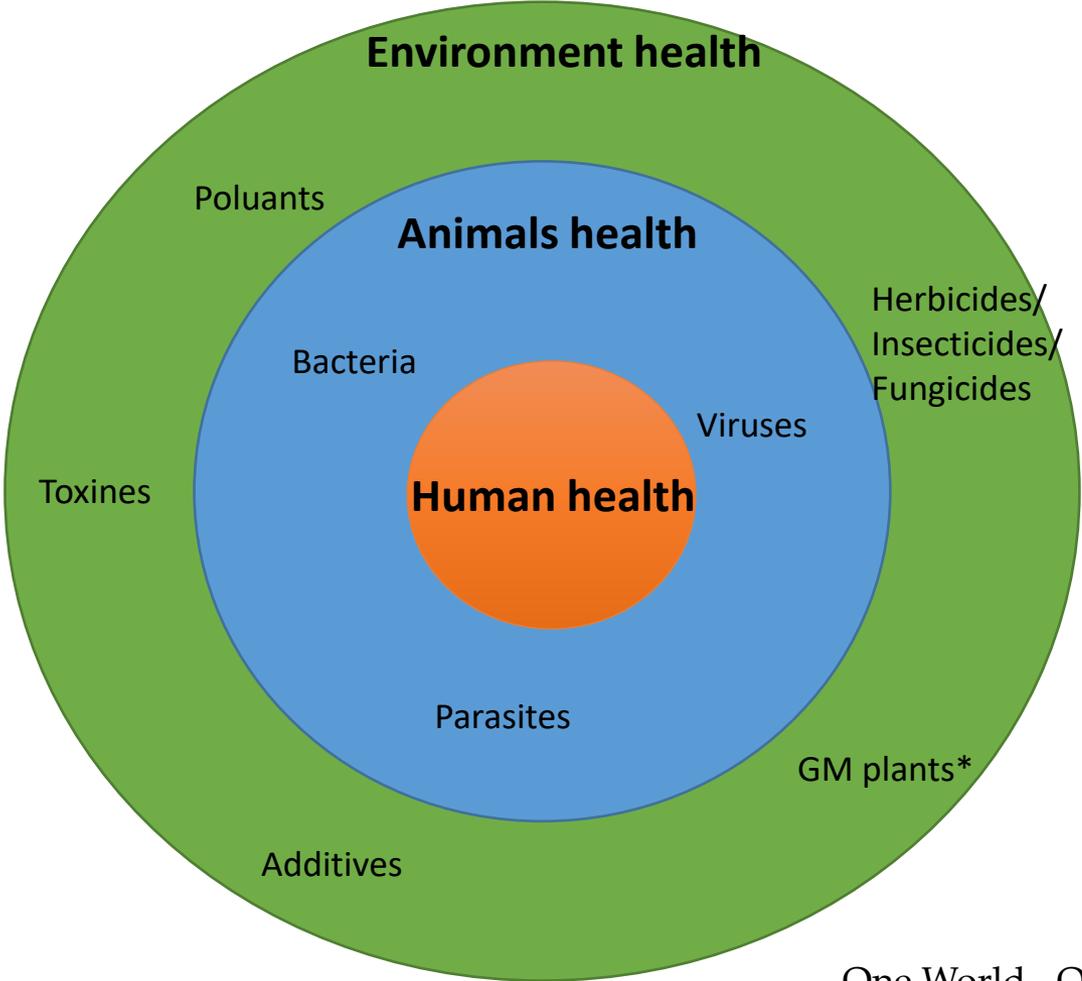
2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

... in One Medicine context



One World - One Medicine - One Health

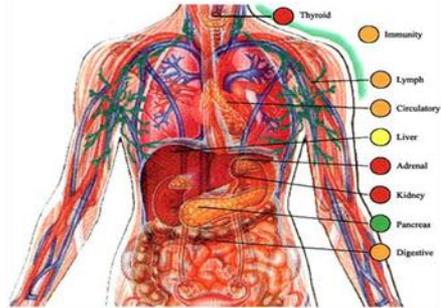
* Genetically modified



... in One Medicine context

Interdisciplinary collaborations:

Metabolomics/ Nutrimetabolomics on plants → animal benefits



Metabolomics/Nutrimetabolomics on animals → human benefits

Metabolomics/Nutrimetabolomics on humans → animal benefits



Metabolomics/Nutrimetabolomics on plants, animals, humans → world benefits



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



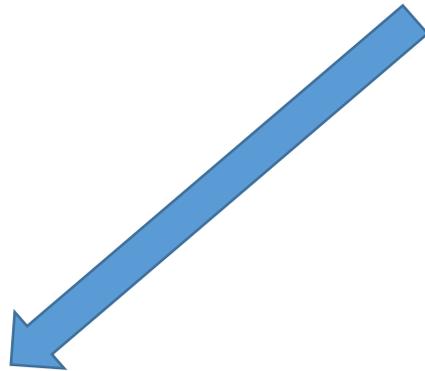
metabolites

... in One Medicine context

Metabolomics/Nutrimetabolomics



Tools in animal health management



Food safety

Food security



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

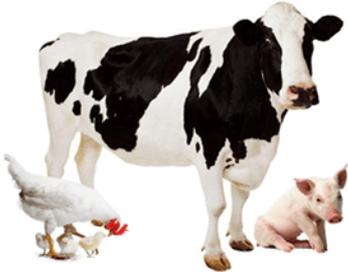
... in One Medicine context

Zoonoses: bacteria, viruses, parasites

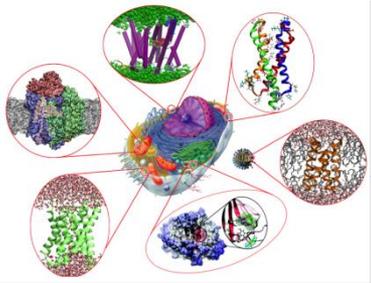
NCDs*: obesity, diabetes, CVD**



**Metabolomics/
Nutrimetabolomics**



CELLS
↓
TISSUES
↓
ORGANS
↓
SYSTEMS



World health

Biological systems health

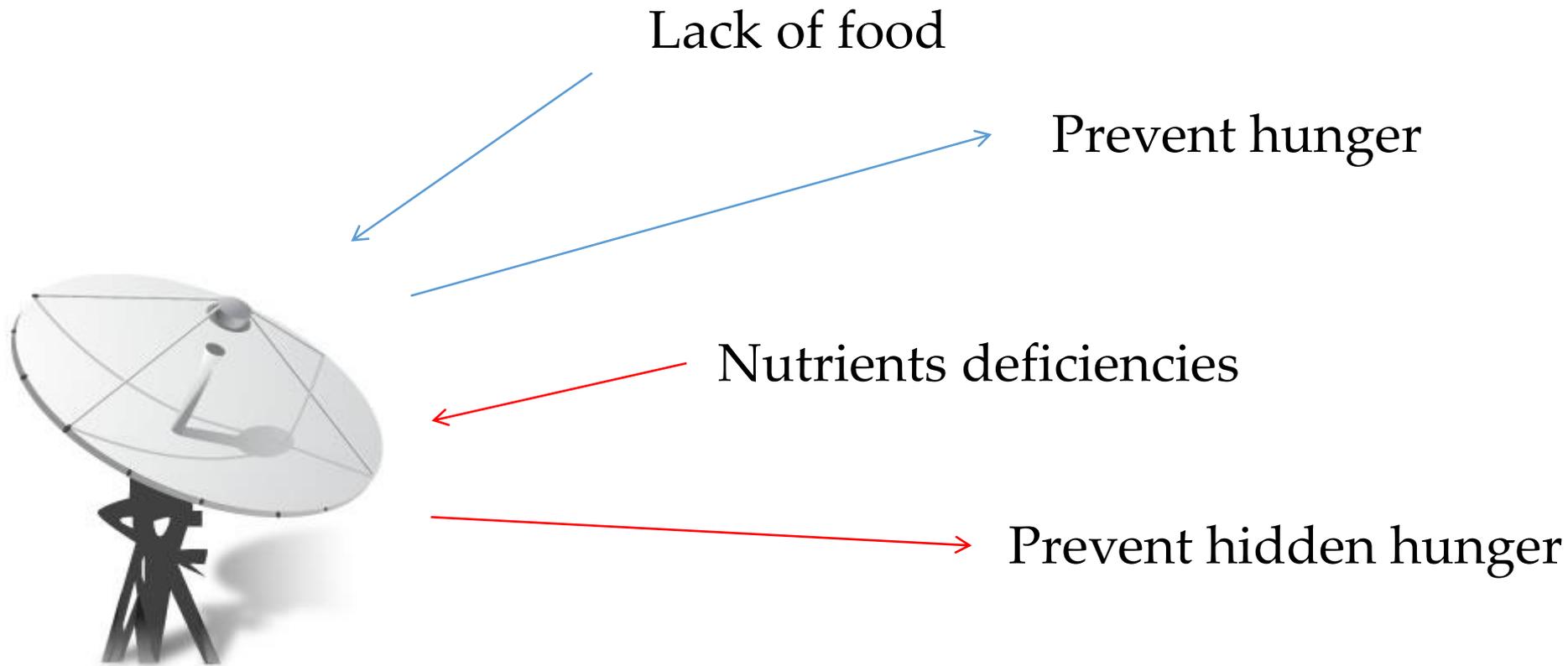
Human health

Animals health

* non-communicable diseases
** cardio-vascular diseases



... in One Medicine context



Nutrimetabolomics



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

Animals and human health



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

Conclusions

- Nutrimetabolomics - the role in nutrition and nutrient quality for the survival of organisms and health maintenance
- The close cohabitation of humans with animals - analysis in the context of One Health
- Medical researches → the existence of medical similarities between humans and animals → sharing the same environment → presenting the same categories of diseases → consuming the same types of food, etc.
- The results from the animal studies → extrapolated to humans
- The results obtained in human medicine → contribute to animal welfare
- The collaboration of human doctors with veterinarians and biologists → for increasing the quality of life for humans and animals (the idea of the One World - One Medicine - One Health concept)



Supplementary Materials

Links:

<http://www.clinsci.org/content/124/5/289>

<http://www.onehealthinitiative.com/>

<http://www.who.int/mediacentre/factsheets/fs355/en>



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites

Thank you!



2nd International Electronic Conference
on Metabolomics
20-27 November 2017

sponsors:



metabolites