



# 11th NuGOweek **NUTRIGENOMICS OF FOODS**

8-11th September 2014,  
The Vesuvian Institute  
Castellammare di Stabia, Italy

## Book of abstracts



# Nutrigenomics of Foods

## Book of abstracts

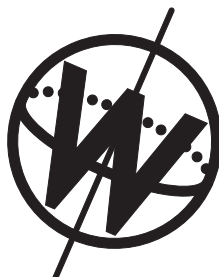
**NuGOweek 2014**

*Castellammare di Stabia, Napoli, Italy*

*8-11 September 2014*

*NuGO-week 2014 is organised in collaboration with CRA-NUT*

Proceedings publication and Abstract Submission System (OASES) by



**Wageningen Academic  
P u b l i s h e r s**

**Study on chronic intake of high and low-flavonoid F&Vs. LC-HR-MS/MS based metabolomics of urine**

M. Ulaszewska<sup>1</sup>, K. Trost<sup>1</sup>, K. Tuhoy<sup>1</sup>, J.A. Lovegrove<sup>2</sup> and F. Mattivi<sup>1</sup>

<sup>1</sup>Fondazione Edmund Mach, Research and Innovation Centre, Department of Food Quality and Nutrition, Via Mach 1, 38010 San Michele all'Adige (TN), Italy, <sup>2</sup>University of Reading, Institute for Cardiovascular and Metabolic Research, Department of Food and Nutritional Sciences, RG6 6AH, Berkshire, Reading, United Kingdom; [maria.ulaszewska@fmach.it](mailto:maria.ulaszewska@fmach.it)

Nowadays, nutrition focuses on improving health of individuals through diet. Current nutritional research aims at health promotion, disease prevention, and performance improvement. Human intervention trials have provided evidence for protective effects of various (poly)phenol-rich foods against chronic disease, including cardiovascular disease, neurodegeneration, osteoporosis and cancer. However, overall impact of polyphenols on human metabolome is not fully known. It is clear, that dietary biomarkers require much further research in order to be better applied and interpreted. A single-blind, dose-dependent, parallel randomized controlled dietary intervention study was designed to measure the dose-response relation between high-flavonoid (HF), low-flavonoid (LF), and habitual F&V intakes and vascular health together with metabolomics profiling and cardiovascular disease (CVD) risk indicators. We aimed with a comprehensive metabolomic analysis of urine to examine thousands of compounds in search of nutritional biomarkers with their complete structural identification. Therefore we applied LC-HR-MS method using Orbitrap LTQ with its unique combination of linear ion trap and FT technologies, which enables rapid, sensitive and reliable detection of small molecules. Metabolomics data together with microvascular reactivity and arterial stiffness measurements support recommendations to increase F&V intake to >6 portions daily, with specific additional benefit from F&Vs that are rich in flavonoids.