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OCTOBER 5 - 8, 2015

Venue: **Hotel DAP**, Vítězné náměstí 4/684, 160 00 Prague 6, Czech Republic

BOOK OF PROCEEDINGS

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L25 BIOMARKERS OF (ANTI)OXIDANT STATUS IN HUMAN NUTRITION, AGING AND DISEASE

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The (anti)oxidant status of individuals is an important factor for the risks of chronic diseases. Biomarker measurements in serum/plasma is a good way to determine the status of the oxidant/antioxidant balance. From our own experience, we come to a proposal of a set of biomarkers for nutritional intake of antioxidants to determine the (anti)oxidant status in serum as a reflection of nutrition. Serum concentrations of biomarkers of fat-soluble vitamins are not suitable to assess transient changes in nutritional intake, because of their strong homeostasis. For long-term epidemiological studies however, they are well-suited. In addition, a number of oxidation/redox biomarkers can be used in addition to the antioxidant to assess possible relations with health risks. The best biomarkers for this purpose are the reactive oxygen metabolites and total thiols. Examples will be given from large-scale European studies.

With the combination of vitamin A, vitamin E, carotenoids (as measured with HPLC), vitamin C, reactive oxygen metabolites, biological antioxidant potency and total thiols (as measured with an auto-analyzer), an overall view is obtained concerning the intake and effect of antioxidants in nutrition and aging research.

In this paper we describe the methods to measure a selection of these biomarkers in general population. Critical points in biomarker validation with respect to blood sampling, storage conditions and assay stability are discussed.