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*Monastero Benedettino - Benedictine Monastery*

**NEW HORIZONS ON TRACE ELEMENTS  
AND MINERALS ROLE IN HUMAN AND  
ANIMAL HEALTH**

**ABSTRACT BOOK**

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## SE-HUMAN SERUM ALBUMIN (SE-HSA) IN HUMAN SERUM AND ITS CORRELATION WITH OTHER SELENIUM SPECIES

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Background: Selenium (Se) speciation is a key issue for both nutritional and toxicological implications, taking into account the inorganic or organic features of the various Se species. The present study focused on human serum albumin bound-selenium (Se-HSA), a species with still uncertain physiological significance and not directly introduced in the physiological Se-cycle, being due to accidental incorporation of selenomethionine into HSA sequence. Methods: We determined levels of total Se and Se species in 50 serum samples drawn from the general population of a Northern Italy community using anion exchange chromatography coupled with inductively coupled plasma dynamic reaction cell mass spectrometry. Correlations between Se-HSA and the other Se compounds and to habits or characteristics of sample donors were performed. We also analyzed the association between Se-HSA and other variables using linear regression models, crude and adjusted for potential confounders. Results: Median (25th-75th) level of the Se-HSA was 25.5  $\mu\text{g/L}$  (16.2-51.5), representing about 20% of total Se. Se-HSA directly correlated with age ( $r=0.43$ , 95% CI 0.18 to 0.71), while inversely with body mass index ( $r=-0.32$ , -0.55 to -0.05). Null relation was found with sex and smoking habits. Using Se-HSA as dependent variable, regression ( $\beta$ ) coefficient of organic Se species was -0.48 (-0.63 to -0.33) and -0.30 (-0.47 to -0.13) in crude and adjusted analysis, inorganic forms were directly associated in both the crude ( $\beta$  0.52, 0.22 to 0.83) and adjusted analysis ( $\beta$  0.11, -0.19 to 0.41). Conclusions: The inverse relation of Se-HSA with other organic Se species may suggest that content of Se-HSA in serum is lower when seleno-aminoacids are incorporated into other selenoproteins, namely selenoprotein P and glutathione peroxidase that showed strongest inverse relation. Reasons of the positive correlation between Se-HSA and inorganic Se are less clear.