

**Thursday, August 10, 2006**

**Poster Session**

**Final Abstracts**

## **R-107**

### **Selenium in Blood Samples from Seychellois Mother-Child Pairs**

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Selenium is a nutritionally important trace element that is required for synthesis of the rare but essential amino acid selenocysteine. Selenocysteine is the biochemically active component of a number of enzymes that occur in tissue specific distributions in all cells of all animals, but with particularly exquisite homeostatic conservation in brain and neuroendocrine tissues. Although only half of the known selenium-containing proteins have been functionally characterized, the recognized functions of selenium-dependent enzymes contribute to free radical detoxification, thyroid hormone regulation, signal transduction, and DNA synthesis. Exposure to excessive quantities of methylmercury is known to compromise selenium-dependent enzyme activities, meanwhile, supplemental selenium is known to protect against mercury toxicity. Maternal methylmercury exposure from ocean fish consumption has not been associated with harm in studies of mothers and children from the Seychelles Islands, possibly as a result of selenium's protective effects. In the current study, over 200 whole blood samples from mothers and new born children participating in the Seychelles Children's Health and Development Study were assessed for selenium contents. Of the total sample set, 148 paired sets of blood samples were collected at time of delivery. Concentrations of selenium in the mothers' whole blood samples were higher than those in their babies' blood. Transport of selenium across the placenta to the fetal blood supply appears to be homeostatically regulated towards attainment of selenium concentrations that optimize selenium dependent enzyme activities. Since ocean fish meats generally contain 5 to 20 times as much selenium as mercury, substantial protective effects against methylmercury are expected to accompany fish consumption.