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Differences in the responses of three plasma selenium-containing proteins in relation to methylmercury-exposure through consumption of fish/whales

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TOX LETTER Highlights

- Se-containing proteins in plasma of methyl Hg-exposed population were analyzed.
- Two plasma selenoproteins showed differences in the response to Hg exposure.
- Blood Hg but not plasma Se positively correlated with consumption of fish/whales.
- Increase in plasma Se might be associated with an increase in selenoprotein P.
- Increased demand for Se in Hg-exposed population was suggested.

Abstract

Putative protective effects of selenium (Se) against methylmercury (MeHg) toxicity have been examined but no conclusion has been reached. We recently reported the lack of serious neurological symptoms in a Japanese fish-eating population with high intakes of MeHg and suggested a potential protective role for Se. Here, relationships between levels of Hg and Se in the blood and plasma samples, with a quantitative evaluation of Se-containing proteins, obtained from this population were examined. While levels of the whole-blood Hg (WB-Hg) and plasma Se (P-Se) showed a positive correlation, stratified analysis revealed that they