Matrix Metalloproteinase-8 and Tissue Inhibitor of Metalloproteinase-1 in Serum Do Not Reflect the Analytes Circulating in Blood

In response:

We appreciate the interest of Professor Jung in our article. He raises an important issue concerning the methods of collecting blood samples for assay determinations and points out the differences between serum and plasma matrix metalloproteinase (MMP)-8 measurements. The serum samples used in our study were collected in vacuum glass tubes (Venoject VT-100 Terumo Corp) as previously described in detail.

Clotting in glass tubes is faster and more effective than in plastic tubes, and thus no clot activator was used. Unfortunately, no plasma samples were available for our studies.

We are aware of the differences of the MMP-8 concentrations between serum and plasma samples. The Figure shows the MMP-8 concentrations of 15 serum and plasma samples from patients with chronic adult periodontitis. For determinations we use both time-resolved immunofluorometric assay, IFMA (Medix Biochemica) with monoclonal catching and tracer antibodies as in the original article, and ELISA (GE Healthcare, Amersham MMP-8 Human Biotrak ELISA System). As shown in the Figure, both methods gave significantly higher serum MMP-8 values compared with plasma samples from the same patients. The differences between serum IFMA and ELISA results may be explained by the high sensitivity of IFMA, and by the obviously different specificities of the antibodies used in the assays. The differences were most notable with high serum MMP-8 concentrations as measured by IFMA (>20 ng/mL), whereas smaller concentrations gave similar results with both procedures (data not shown). Most importantly, there were significant positive correlations between serum and plasma IFMA (r=0.636, P=0.015) as well as between serum and plasma ELISA (r=0.718, P=0.003) measurements.

We agree with Professor Jung that it is crucial to know what kind of method is used in collecting blood samples before determinations. In addition, we emphasize the importance of the selection of assay. However, the aim of our study was to evaluate the association of serum MMP-8 with cardiovascular diseases (CVD), irrespective of the origin of the protein. Serum concentrations may reflect the overall homeostasis of MMP-8, and therefore we consider our conclusion of its prognostic and diagnostic value concerning CVD still to be valid.

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Disclosures

None.

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Key Words: matrix metalloproteinase-8 ■ time-resolved immunofluorometric assay ■ enzyme-linked immunosorbent assay ■ serum ■ plasma
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