

The vitamin D metabolome: analysis of multiple vitamin D metabolites in serum and tissue

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Recent studies have linked vitamin D status with human health problems that extend far beyond the classical vitamin D-deficiency disease rickets/osteomalacia. In particular, it has been suggested that vitamin D-deficiency has detrimental effects on pregnancy outcome and normal immune function. In these health settings vitamin D 'status' has to date been defined simply by variations in serum concentrations of 25OHD3 despite the fact that this is an inactive form of vitamin D. The aim of my talk will be to address two important factors that arise from this assumption:

- 1) are there other vitamin D metabolites that may better define vitamin D 'status'?
- 2) are circulating levels of 25OHD3 representative of vitamin D metabolism in target tissues?

To address these questions we have developed a high-throughput liquid chromatography-tandem mass spectrometry method for analyzing multiple vitamin D metabolites in serum and solid tissues. In my talk I will describe how we have used this strategy to assess the relationship between serum and placental tissue vitamin D metabolites in pregnant women at different stages of gestation. We have also assessed differences in these vitamin D 'metabolomes' in healthy pregnancies and pregnancies associated with preeclampsia.