

## Copper isotope in serum of thyroid cancer patients

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Copper (Cu) is an essential micronutrient and a transition metal. It plays both catalytic and structural roles in several essential enzymes involved in neoplastic tissue differentiation, such as ceruloplasmin, cytochrome oxidase, and superoxide dismutase [1]. Many studies in human bloods of different cancers such as breast cancer and colorectal cancer, have shown that neoplasia is associated with a modification of the blood ratio  $^{65}\text{Cu} / ^{63}\text{Cu}$  ( $\delta\text{Cu}$ ) [2].

The aim of the present study is to evaluate the blood copper stable isotope ration  $\delta\text{Cu}$  as a biomarker of thirty humans with thyroid cancer and healthy controls. The  $\delta\text{Cu}$  of thyroid cancer patients was significantly higher than the ratio of healthy controls ( $P < 0.0001$ ). We wish to increase the number of samples to have more fiability to use the  $\delta\text{Cu}$  as a biomarker of thyroid cancer.

[1] G. J. Brewer, Copper in medicine, *Curr. Opin. Chem. Biol.*, 2003, 7, 207–212.

[2] Copper isotope effect in serum of cancer patients. A pilot study  
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