

Thyroid Hormones Regulate Selenoprotein Expression and Selenium Status in Mice

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2943913/?tool=pubmed>

[[....Even more relevant, our data demonstrate that serum T3 positively correlates with serum Se and that an unliganded TR α 1, as in hypothyroidism, reduces serum Se levels. This interconnected feed-forward regulation of TH and Se may be of paramount pathophysiological importance in the clinics, and could contribute to the vicious cycle observed in critical illness in which both parameters are known to decline in parallel ([Fig. 5](#)). At present, rescue treatments using TH supplements have yielded controversial results in critical illness [\[61\]](#), [\[62\]](#), [\[63\]](#), [\[64\]](#). Similarly, Se supplementation trials did not provide uniform results. Even though no trial showed adverse effects of Se, the majority of studies have been rather small and yielded either null or positive results [\[65\]](#). Data from a recently completed multicentre double-blind prospective trial were explicitly positive [\[66\]](#), especially for the male patients enrolled [\[67\]](#). Still, an intensive discussion is currently held about the best Se dosage regimen, supplement and application modus [\[68\]](#), [\[69\]](#). Given our findings and the conflicting results for TH and Se correction trials in critically ill patients, it might be advantageous to correct T3 status and Se deficiency in parallel to interrupt the self-amplifying pathogenic mechanism aggravating the disease and all too often causing a deadly outcome ([Fig. 5](#)).]]