

# Abstract

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## The Synergistic Effect of Serine with Selenocompounds on the Expression of SelP and GPx in HepG2 Cells.

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**OBJECTIVE:** We explored the synergistic effect of serine combined with several selenocompounds or used alone on the expression of selenoprotein P (SelP) and glutathione peroxidase (GPx) in this study.

**METHODS:** We first compared the SelP and GPx expression difference between HepG2 and Hela cells treated with serine and finally chose HepG2 as experimental cell. In the serine-used-alone experiment, three kinds of selenium nutritional models (low-, adequate-, and high-selenium) were established and serine was 10 times gradient diluted (0.01 to 100  $\mu\text{mol/L}$ ). In the combined experiment, the selenocompound doses were set as 0.01, 0.1, and 1  $\mu\text{mol Se/L}$  and serine was set according to its molar ratio with the selenocompounds.

**RESULTS:** We found that SelP and GPx concentrations in the low-, adequate-, and high-selenium models increased following with serine dose. When the concentration of sodium selenite and SeMet was 1  $\mu\text{mol Se/L}$  while MeSeCys was 0.1 and 1  $\mu\text{mol Se/L}$ , SelP concentrations for serine combined with selenocompounds groups were significantly higher than that of selenocompounds used alone. When the concentration of sodium selenite was 0.1  $\mu\text{mol Se/L}$ , SeMet was 0.1 and 1  $\mu\text{mol Se/L}$  while MeSeCys was 0.01 and 1  $\mu\text{mol Se/L}$ , GPx concentrations for serine combined with selenocompounds groups were significantly higher than that of selenocompounds used alone.

**CONCLUSION:** Our preliminary result indicated the beneficial effect of serine on the expression of SelP and GPx, which suggested that it might be a candidate for combined selenium supplement.

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