Differential Expression of Antioxidant Enzymes in Various Hepatocellular Carcinoma Cell Lines

李怡萱

Lee HH;Yang LL;Wang CC;Hu SY;Chang SF;Lee YH

摘要

Abstract

Recent evidence suggests that reactive oxygen species (ROS) play an important role in the pathogenesis of various illnesses, and the ROS and antioxidant enzymes are highly associated with cell differentiation and diseases. In this study, we tested the hypothesis that specific antioxidant enzymes are differential ly expressed in hepatocellular carcinoma (HCC) cell lines with various degrees of differentiation. We compared the expression of several antioxidant enzymes including catalase (CAT), superoxide dismutase (SOD), glutathione reductase (GRx), and glutathione peroxidase (GPx) in five HCC cell lines with well (Hep G2 and Hep 3B) or poor (HA22T/VGH, HA55T/VGH, and SK-Hep-1) differentiation. Our results showed that both well-differentiated HCC cell lines expressed extremely higher CAT and GRx enzyme activities than all three poorly differentiated ones. Moreover, the protein and mRNA levels of CAT were much higher in two well-differentiated HCC cell lines than in all three poorly differentiated ones. Both well-differentiated HCC cell lines also showed a higher protein or mRNA expression of Cu/ZnSOD and MnSOD than three poorly differentiated ones. Our results demonstrate that specific antioxidant enzymes (especially, CAT and GRx) are differentially expressed in HCC cell lines with well or poor differentiation. These findings suggest that CAT and GRx are two potential differentiation markers for HCC.