

Expression pattern of selenoprotein genes during embryogenesis

Kyong-Ok No, Sang-Yoon Nam, Young-Bang Kwon
and Jong-Koo Kang.

College of Veterinary Medicine, Chungbuk National University,
Cheongju 361-763, Korea

Selenium is an essential micronutrient for mammals and its biological functions are mediated by a selenoprotein. The mitochondrial capsule selenoprotein (MCS) is a selenoprotein that is necessary for the maintenance and stabilization of the sperm mitochondrial membrane. The phospholipid hydroperoxide glutathione peroxidase (PHGPx) is a selenoenzyme protecting the biomembranes exposed to oxidative stress. We previously demonstrated that the above selenoproteins are greatly expressed after puberty and are mainly involved in spermatogenesis. In this study, to investigate the expression pattern of the selenoproteins during embryogenesis, we performed reverse transcription-polymerase chain reaction (RT-PCR) and whole mount *in situ* hybridization analyses on mouse embryos using digoxigenin-labeled cRNA probe for the mouse MCS or PHGPx. According to the RT-PCR analyses, MCS mRNA began to appear after embryonic day(Ed) 14 and was strongly expressed at Ed 18, whereas PHGPx mRNA was greatly expressed throughout all embryonic stages. In whole mount *in situ* hybridization analyses, PHGPx mRNA was mainly expressed in nervous tissues at Ed 10 and 11.

These findings suggest that the selenoproteins MCS and PHGPx are expressed before birth and furthermore PHGPx may be related to the differentiation of early nervous tissues.