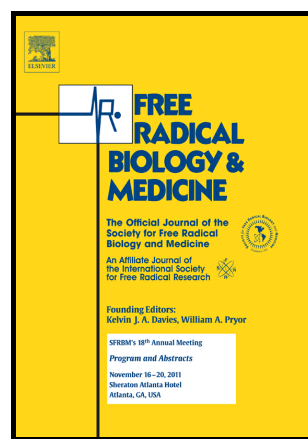


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“Selenoproteins in colon cancer”

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Abstract

Selenocysteine-containing proteins (selenoproteins) have been implicated in the regulation of various cell signaling pathways, many of which are linked to colorectal malignancies. In this in-depth excursion into the selenoprotein literature, we review possible roles for human selenoproteins in colorectal cancer, focusing on the typical hallmarks of cancer cells and their tumor-enabling characteristics. Human genome studies of single nucleotide polymorphisms in various genes coding for selenoproteins have revealed potential involvement of glutathione peroxidases, thioredoxin reductases, and other proteins. Cell culture studies with targeted down-regulation of selenoproteins and studies utilizing knockout/transgenic animal models have helped elucidate the potential roles of individual selenoproteins in this malignancy. Those selenoproteins, for which strong links to development or progression of colorectal cancer have been described, may be potential future targets for clinical interventions.

Keywords

colorectal cancer; glutathione peroxidases; inflammation; selenium; selenoproteins; single nucleotide polymorphisms; thioredoxin reductases

Abbreviations

CRC Colorectal Cancer
DIO Iodothyronine Deiodinases
ER Endoplasmic Reticulum
GPX Glutathione Peroxidase

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