Public Abstract

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Title:THE ROLE OF HEME OXYGENASE IN METASTATIC MELANOMA TUMORIGENICITY

Everyday our bodies are exposed to reactive oxygen species as a byproduct of energy production. Reactive oxygen species (ROS) play various roles in normal cellular function, but when they accumulate they lead to oxidative stress, which causes damage to the DNA, protein, and membrane lipids of a cell. This damage can lead to a variety of diseases such as cancer, cardiovascular disease, and obesity. Luckily, our cells have a response to oxidative stress, which facilitates the removal of harmful ROS and promotes cell survival. Recently, many of the proteins, which make up this protective response, have been implicated in promoting cancer when overexpressed. One such protein, Heme Oxygenase-I (HMOX1), has been implicated in promoting metastatic growth when overexpressed at later stages in development. This dissertation provides evidence for a role for heme oxygenase activity in promoting melanoma tumorigenesis. Because metastatic melanoma has a median overall survival (OS) of only 6 to 10 months and current therapeutic strategies provide only modest improvement in OS, there remains a need for the identification and development of novel targeted therapies. Heme oxygenase activity may provide a novel therapeutic target for the treatment of metastatic melanoma.