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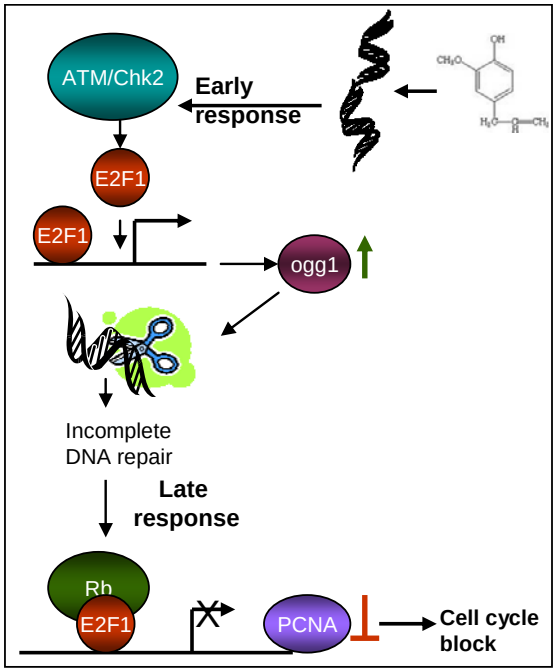

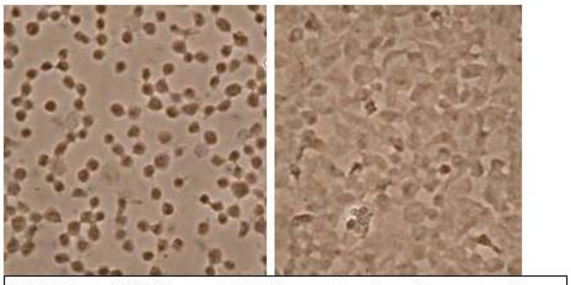

Inhibition of E2F1 expression in metastatic melanoma cells. Treatment of melanoma cells in culture by a naturally occurring compound leads to loss of E2F1 expression as detected by immunocytochemistry. Untreated cells are shown in the left panel and treated cells are in the right panel.

We use cell culture and animal models to study deregulation of DNA damage signaling and cell cycle in cancer and use these molecular targets to develop strategies for cancer prevention. We are studying the role of the E2F transcription factor family in cell cycle progression, DNA damage signaling, and apoptosis. Different members of this family play contrasting as well as overlapping roles in normal and cancer cells. While overexpression of E2F1 has been shown to increase proliferative potential in some cancers such as melanoma it is associated with tumor suppressive role in bladder cancer. Using a naturally occurring small molecule inhibitor of E2F1 activity we are probing the different roles of the E2Fs in DNA damage signaling, apoptosis, invasion and their interactions with the pocket proteins in carcinogenesis. We use a combination of genomics and molecular biology approaches in our *in vitro* studies. Some of the techniques being used in the different projects include microarray analysis, RNA interference assays, quantitative real-time RT-PCR, reporter gene assays, *in vitro* transcription assay, measurement of oxidative DNA damage, proliferation and apoptosis assays, immunoprecipitation and Western blotting.