2'-BENZOYOLOXYCINNAMALDEHYDE REGULATES PTEN INDEPENDENT OF DJ-1 IN MDA-MB-435 BREAST CANCER CELLS

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Abstract:

2'-Benzoyloxycinnamaldehyde (BCA) is a promising anticancer candidate against several types of cancers, including breast cancer. DJ-1 has been found to act as an oncogene, protecting cells against oxidative stress. A previous study showed that BCA-inducing antiproliferation was associated with continuous decrease in DJ-1 expression in MDA-MB-435 breast cancer cells. In this study, we found that this DJ-1 decrease after BCA treatment is associated with increased reactive oxygen species (ROS) release, and depletion of glutathione (GSH), and γ-glutamylcysteine synthetase (γ-GCS). The tumor suppressor Pten protein is known to be a downstream target for DJ-1. Therefore, Pten expression was investigated after BCA treatment and DJ-1 siRNA transfection. DJ-1 knockdown with DJ-1 siRNA transfection markedly increased Pten expression. However, unexpectedly BCA-inducing DJ-1 downregulation is associated with decreased Pten protein expression. Altogether, these data suggest that BCA downregulates Pten protein expression in MDA-MB-435 cells independent of DJ-1.

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