OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference and Exhibition on
Metabolomics & Systems Biology

March 24-26, 2014 San Antonio, USA

Identification of mitochondrial single stranded DNA binding protein (mtSSB) as a novel radioresistance-related protein

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Abstract

Radiotherapy takes an important role in treatment of various cancers while the main limit for this strategy is radioresistance of cancer cells. Mitochondrial single stranded DNA binding protein (mtSSB) is not only involved in the regulation of mitochondrial morphology and function, but also closely related with cell growth, cell metabolism, and cell cytokine responses to injury and cell survival. In this study, the radiobiological function of mtSSB was investigated by RNA interference in H1299 cell line (a non-small cell lung cancer cell line). The results indicated that suppression of mtSSB resulted in a reduction in clonogenic survival rate, cell proliferation, mtDNA content and ATP concentration, whereas led to an increase in apoptosis, DSBs, cellular mitochondrial permeability transition and reaction oxygen species (ROS). These data suggested that mtSSB might be a novel potential predictive biomarker, or a sensitive target for radiotherapy.

Biography

Fuxiang Zhou has completed his Ph.D. at the age of 40 years old from Zhongnan Hospital of Wuhan University and postdoctoral studies from CAL Cancer Center, University of Nice, France. He is the director of Hubei Key Laboratory of Tumor Biological Behaviors & Hubei Cancer Clinical Study Center. He has published more than 40 papers in reputed journals and serving as an editorial board member of repute.

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