ROS Mediated Enhancement of Radiation Response by Sps

Hyun Ju Chung, Eunhee Kim, Chul-Koo Cho,
Su-Jae Lee, Yun-Sil Lee, and Sangwoo Bae

Korea Institute of Radiological and Medical Sciences
215-4 Gongneung-Dong, Nowon-Gu, Seoul, Korea

Abstract

We employed subtractive hybridization methods to identify radiation induced genes. These genes are expected to have some role in radiation response. among the identified genes, sps (interchangeable with HSDP) was shown to modulate radiation response. Stable cell line which overexpress sps enhanced p53 activity by increasing protein stability and activity as a transcription factor. Increased p53 was correlated with increased phosphorylation of serine residue 15 of p53 protein. sps cell lines produced more p21 and MDM2 which are two representative p53 target genes. Increased level of p53 was due to increased protein stability. Half life of p53 was increased in sps cell lines. Increased P53 level was correlated with enhanced cell killing by irradiation in sps cell lines. Both UV and gamma radiation caused lowered cell viability of sps cell line. We conclude that overexpression of sps caused upregulation of p53, a main mediator of radiation response, and sensitized cells that stably expressed sps.