Title
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Abstract

Region specific DNA breaks can be created in single cells using laser light that damages DNA but does not directly generate reactive oxygen species (ROS). We have examined the cellular response to directly generated DNA breaks in single cells. Using a combination of ROS specific dyes and oxidase inhibitors we have found that the oxidase and chromatin remodeling protein Lysine demethylase I (LSD1) generates detectable ROS as a byproduct of its chromatin remodeling activity during the initial DNA damage response. ROS is produced at detectable amounts primarily within the first 3 minutes post irradiation. LSD1 activity has been previously associated with transcriptional regulation therefore these findings have implications for regulation of gene expression following DNA damage particularly in cells with altered redox states.

View presentation video on SPIE's Digital Library: http://dx.doi.org/10.1117/12.2190375.4519370460001

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