

DNA-damage response in tissue-specific and cancer stem cells.

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Funding Grants: Mechanisms Underlying the Responses of Normal and Cancer Stem Cells to Environmental and Therapeutic Insults

Public Summary:

Review article describing the different strategies used by normal and cancer-initiating stem cells to cope with DNA damage, and the mutagenic consequences of such DNA repair

Scientific Abstract:

Recent studies have shown that tissue-specific stem cells (SCs) found throughout the body respond differentially to DNA damage. In this review, we will discuss how different SC populations sense and functionally respond to DNA damage, identify various common and distinct mechanisms utilized by tissue-specific SCs to address DNA damage, and describe how these mechanisms can impact SC genomic integrity by potentially promoting aging, tissue atrophy, and/or cancer development. Finally, we will discuss how similar mechanisms operate in cancer stem cells (CSCs) and can mediate resistance to chemo- and radiotherapy.

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