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Regulation of DNA double-strand break repair pathway choice: a new focus on 53BP1

Key words: 53BP1, DNA double-strand breaks, Non-homologous end joining (NHEJ), Homologous recombination (HR), Poly (ADP-ribose) polymerase inhibitor (PARPi)

Research Summary

1. **This review focuses on discoveries that have shed light on how upstream factors regulate 53BP1 protein in the DNA damage response.**

2. **This review also aims to summarize the current knowledge on how 53BP1 induces the downstream responsive effectors involved in the NHEJ signaling pathways.**

3. **This review highlights 53BP1 as a key determinant of DSB repair pathway choice, which provides new insights for improving cancer therapy strategies.**