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BRCA2-repair

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Mutations in the human *BRCA2* gene are associated with susceptibility to early-onset breast cancer, but it is unclear how the wild-type BRCA2 protein works. In the July 17 Proceedings of the National Academy of Sciences, Xia *et al.* describe investigation of the role of BRCA2 in DNA repair (*Proc Natl Acad Sci USA* 2001, **98:**8644-8649). They expressed *BRCA2* in Capan-1 carcinoma cells, the only human cell line that has non-functional BRCA2. BRCA2 expression increased homologous recombination ten-fold, and required interaction with the Rad51 protein. This homologous recombination increase resulted in increased resistance to ionizing radiation. BRCA2 expression had no effect on non-homologous end joining (NHEJ), another double-strand-break repair pathway. Thus, BRCA2 regulation of homologous recombination ensures the repair of damaged DNA to maintain genome integrity.

References

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