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BRCA1 enhances repair

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Mutations in the BRCA1 gene are associated with increased risk of breast cancer and are often accompanied by mutation of the *p53* tumour suppressor gene product. In an Advanced Online Publication in Nature Genetics Anne-Renee Hartman and James Ford from the Stanford University Medical Center in California, describe a role for the BRCA1 protein in regulating DNA-repair pathways (*Nature Genetics*, 26 August 2002, DOI:10.1038/ng953). They constructed human cell lines with a tetracycline-regulated *BRCA1* allele, in the presence or absence of functional p53. Overexpression of BRCA1 led to increased global genomic repair, a subtype of nucleotide-excision repair. BRCA1 induced expression of genes known to be involved in nucleotide-excision repair, such as *GADD45*, *XPC* and *DDB2*, in the p53-deficient cells. Hartman and Ford suggest that BRCA1 plays an important role in DNA repair and maintaining genome stability, and regulates a key early step in a process of multi-stage tumour progression.

References

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