

# Coupling of Substrate Recognition and Catalysis by a Human Base-Excision DNA Repair Protein

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The human 8-oxoguanine DNA glycosylase (hOGG1) performs base-excision repair of the mutagenic lesion 7,8-dihydro-8-oxoguanine (oxoG) by catalyzing cleavage of the bond linking the lesion to its sugar. A previously reported x-ray structure of a mutant form of hOGG1 provided insight into recognition of oxoG by the enzyme but raised questions about the catalytic mechanism. We report the x-ray structure of wild-type hOGG1 bound to mechanism-based inhibitor and with no oxoG occupying the base-recognition pocket. The structure lends insight into the coupling of base recognition and catalysis and suggests a previously unanticipated role for a key aspartic acid residue in the enzyme. See *Journal of the American Chemical Society* 123, 359-360 (2001) for the complete article.