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The importance of maintaining genome integrity is highlighted by diseases that arise upon loss of the mechanisms that ensure correct DNA replication and repair. In an Advanced Online Publication in Nature Genetics, Cheung *et al.* describe a mutator phenotype in *Caenorhabditis elegans* that is associated with deletions in polyguanine tracts and is caused by disruption of a new gene that they have nicknamed *dog*-1 (for deletions of guanine-rich DNA) (*Nature Genetics* 8 July 2002, DOI:10.1038/ng928). The *dog*-1 gene encodes a protein containing a DEAH helicase domain. Disruptions within the *dog*-1 gene, or RNAi experiments, led to variable deletions of G-rich tracts around the *C. elegans* genome, without affecting other repeat structures or telomeres. Deletions were generally observed in tracts containing more than 22 guanine nucleotides. Cheung *et al.* propose that DOG-1 is important for resolving secondary structures of G-rich DNA and predict that homologs may exist in other species.

References

1. Genome maintenance mechanisms for preventing cancer.

2. *Nature Genetics*, [http://www.nature.com/ng/]