

Thus, an *Escherichia coli* cell growing at 37 °C in the presence of a high, but nonlethal, concentration of the alkylating agent methyl methanesulphonate would suffer (and successfully repair) several thousand apurinic sites per generation, caused by release of the alkylation products 3-methyladenine and 7-methylguanine. In contrast, only a single apurinic site would emerge every second generation by spontaneous depurination of the *E. coli* chromosome. This reaction must, nevertheless, be of significance for mammalian cells in view of their very large genome size and slow replication, and it can be estimated that in each human cell 2,000-10,000 DNA purine bases turn over every day owing to hydrolytic depurination and subsequent repair⁵.