Abstract

A micro-array analysis using biopsies from patients with EBV-positive undifferentiated nasopharyngeal carcinoma (NPC) and from cancer-free controls revealed down-regulation of tumour suppressor genes (TSG) not previously associated with this disease; one such gene was the ataxia telangiectasia mutated (ATM) gene. Q-PCR confirmed down-regulation of ATM mRNA and ATM protein expression in tumour cells was weak or absent in almost all cases. In NPC cell lines, however, ATM was down-regulated only in the EBV-positive line, C666.1, and in none of five EBV-negative lines. In vitro infection of EBV-negative NPC cell lines with a recombinant EBV was followed by the down-regulation of ATM mRNA and protein, and only EBV-positive cells showed a defective DNA damage response following gamma-irradiation. Our data suggest that loss of ATM function could be an important step in the pathogenesis of NPC, and may have implications for the treatment of this disease.