Synopsis of Original Research Paper

Regulation of expression of the UV-induced damage -specific DNA binding protein, DDBp48

Masaru Yamaizumi

Institute of Molecular Embryology and Genetics, Kumamoto University

Cell strains from a subset (Ddb^-) of individuals carrying XP complementation group E (XPE) lack a damage-specific DNA binding (DDB) activity. Because DDB was reported to recognize many types of DNA lesions and is inducible by treatment with DNA- damaging agents in a p53-dependent manner, DDB was originally expected to play a role in damage recognition prior to nucleotide excision repair. However, recent studies have reported that DDB is not required for nucleotide excision repair in vitro. Thus, its function is still remaining uncertain. Here, we reinvestigated the classification of three Ddb^+ XPE cells and found that they belong to other complementation groups of XP and UVsS. We analyzed the putative p53 responsive element in the intron 4 of the DDB2 gene, and found that it has a week binding activity to p53 as determined by a gel-shift assay, and that it stimulates transcription of a reporter gene containing the element when co-expressed with wild type p53.