4,4′-METHYLENE BIS(2-CHLOROANILINE) (MOCA) (Group 2A)

A. Evidence for carcinogenicity to humans (*inadequate*)

In a review, a higher than expected incidence of bladder cancer was reported among workers in a UK plant manufacturing MOCA[1]. An earlier study of workers manufacturing

this compound in the USA, who were followed up for less than 16 years, failed to reveal any bladder tumour[2].

B. Evidence for carcinogenicity to animals (*sufficient*)

After oral administration of MOCA, mice developed haemangiosarcomas and hepatomas[2,3]; rats developed lung, liver, mammary gland and Zymbal gland tumours and haemangiosarcomas[2-5]; and dogs developed urinary bladder tumours[6]. Tumours of the lung and liver were produced after subcutaneous injection of rats[2].

C. Other relevant data

MOCA is an aromatic amine with structural similarities to benzidine, which is causally associated with cancer in humans (see p. 123).

No data were available on the genetic and related effects of MOCA in humans.

MOCA induced micronuclei in bone-marrow cells of mice treated *in vivo*. Conflicting results were obtained for the induction of sister chromatid exchanges in Chinese hamster cells *in vitro*; it induced unscheduled DNA synthesis in rodent hepatocytes. In yeast, MOCA induced aneuploidy, gave equivocal results in assays for gene conversion and did not cause mutation. It was mutagenic and induced prophage in bacteria[7].

References

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