

Guidelines/Criteria	
Reference:	Berry DL, Slaga TJ, DiGiovanni J, Juchau MR. 1979. Studies with chlorinated dibenzo-p-dioxins, polybrominated biphenyls, and polychlorinated biphenyls in a two-stage system of mouse skin tumorigenesis: Potent anticarcinogenic effects. Annals New York Academy of Sciences, New York, USA, pp 405-414.
<b>In vivo Study Type</b> Route of Administration Species & age of animals	Mouse skin cancer study Dermal Female CD-1 mice
<b>Study Duration</b>	31 weeks
<b>Type of Mixture</b> Binary >2 components Similar acting or dissimilar What Mode of Action was investigated?	Yes No Mixtures were of one initiator with one promotor 2 stage model of carcinogenesis
<b>Parameters/End points Measured</b> Target organs/Critical effects Pharmacological changes or adverse effects	Skin papillomas Adverse
<b>Individual Components</b> Characterisation of individual compounds Name, exact chemical name, CAS no.  Were dose responses established for individual components? Were no effect levels established?  Were doses below the NO(A)ELs investigated?	DMBA (7,12-dimethylbenz(a)anthracene), PCB (aroclor 1254), PBB (polybrominated biphenyls, not further specified), TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin). No, only single doses were tested At the single dose tested, none of the chemicals listed resulted in tumours (TPA additionally was studied and did produce tumours alone). No
<b>Mixtures Investigated</b> Number of dose levels How does the mixture make-up compare to individual components? (e.g. low dose) equivalents used? No. of technical replicates per exposure condition ( <i>in vitro</i> ) No. of animals per dose group ( <i>in vivo</i> )	1 only DMBA, the initiator, was tested in combination with each promotor, i.e. PCB, PBB or TCDD.
<b>Observations/Findings</b>	No tumours with any of the mixtures listed, i.e. all those for which the single chemicals also produced no tumours.
<b>Overall opinion</b> (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	Good paper, but only one dose level. Other studies are also reported in the same paper, but all involved mixtures where not all the components were at their NOEL.