

| Guidelines/Criteria | |
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| Reference: | Kang KS, Wilson MR, Hayashi T, Chang CC, Trosko JE. 1996. Inhibition of gap junctional intercellular communication in normal human breast epithelial cells after treatment with pesticides, PCBs, and PBBs, alone or in mixtures. Environ Health Perspect 104(2):192-200. |
| In vitro Study Type Route of Administration Species & age of animals | Normal human breast epithelial cells |
| Study Duration | 90 minutes |
| Type of Mixture Binary >2 components Similar acting or dissimilar | Yes No Similar |
| What Mode of Action was investigated? | Inhibition of cell communication (potentially promoting tumours) |
| Parameters/End points Measured Target organs/Critical effects Pharmacological changes or adverse effects <i>In vitro</i> | Inhibition of gap junctional intercellular communication (GJIC) measured using a dye transfer technique involving fluorescence redistribution after photobleaching (confirmed by microscopy and western blotting of connexin 43). |
| Individual Components 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? | 4,4-DDT (DDT), dieldrin, 2,2,4,4,5,5-HCB (HCB), 2,2,4,4,5,5-HBB (HBB) Yes Yes (all in uM): 25 for DDT, 6 for dieldrin, 28 for HCB (56 in another experiment), 8 for HBB. Yes, 2 for DDT and 1 for the others |
| Mixtures Investigated 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 Not stated, but 4 binary mixtures were tested at a single concentration and proportion of components. Not stated: there were 20-30 separate determinations, but might have been all on one plate. |
| Observations/Findings | Mixtures tested at 0.25xNOEL of DDT + 0.5xNOEL of HCB, and 0.5xNOEL of dieldrin + 0.5xNOEL of HCB showed a reduction in GJIC. However, mixtures tested at 0.25xNOEL of DDT + 1xNOEL of HBB, and 0.5xNOEL of dieldrin + 1xNOEL of HBB showed no reduction in GJIC. The effects of lack of them for all four mixtures were confirmed by microscopy and western blotting of connexin 43. |
| Overall opinion (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated) | The use of only one dose of each mixture is a limitation. |