



# Systemic Study on Association between Dioxin and Liver Cancer

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## Abstract

**Background:** Animal study has shown that dioxin-sensitive rats exhibit significant transcriptional heterogeneity in hepatic responses to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). There are many studies on the association between the dioxin exposures and human cancers, but with conflict results including studies for liver cancer as well. A meta-analysis may evaluate the association.

**Aims:** For this systemic review, we search for studies published in the recent 2 decades that reported the association between dioxin exposures and liver cancer risks.

**Methods:** We searched Pubmed and Medline for reports published in journals in English using key words limited to 2,3,7,8-tetrachlorodibenzo-p-dioxin, TCDD, human exposure, liver cancer, liver cancer cell proliferation and hepatic neoplastic development. We identified 5 studies with relative risks (RRs) of liver cancer or liver cancer mortality measured by exposure levels assessed based on place of residence for general population and farmers, and for males and females.

**Results:** Compared with residential areas of the lowest exposure levels, none of the reported 21 RRs of liver cancer or liver cancer mortality for residents with higher exposures were significant, ranging from 0.0 (95% CI 0.0-3.9) to 1.3 (95% CI 0.3-3.8).

**Conclusions:** Residents living in the high exposure areas are not at a higher risk of liver cancer or mortality from liver cancer. The pathway of human exposure to dioxin based on the place of residence is not clear. The exposure levels are probable not high enough to assess the causal relationship.

**Keywords:** Dioxin, liver cancer, relative risk, systemic study.

