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Meeting abstract



# Use of human-derived cell lines for the investigation of dietary factors which affect DNA stability

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One of the key problems in *in vitro* genotoxicity testing concerns the adequate representation of xenobiotic drug metabolising enzymes in the indicator cells. Conventional cell lines (V-79, CHO) which are currently used lack most phase I as well as phase II enzymes, which catalyse the activation/detoxification of chemical carcinogens. As shown earlier by our working group, the human cell line HepG2 possesses several phase I/phase II enzymes in an inducible form, but one of the disadvantages of HepG2 cells is their instability and the lack of specific enzymes (e.g. CYP2E1, NAT2, CYP1A2) which are important in the activation of dietary carcinogens (nitrosamines, heterocyclic aromatic amines). Therefore we studies the metabolic capacity of four new isolated human-derived cell lines (HCC1.2, HCC2, HCC3 und NKNT-3) by use of RT-PCR and investigated the sensibility of these lines towards induction of DNA damage by selected representatives of different classes of genotoxic dietary carcinogens which require activation (NDMA, PhIP, Trp-P-1, AFB1, B(a)P). Two of theses cell lines were found to possess a variety of enzymes monitored, including those which are lacking in HepG2, and positive results were obtained in the single cell gel electrophoresis assay with all of the model compounds in the line HCC1.2. Taken together, our results indicate that these cell lines may be highly useful tools for the detection of dietary mutagens and antimutagens.