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## Recent Work

### Title

7H-Benzo[c]fluorene DNA adduct formation in different human cells in culture

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**ABSTRACT**

**7H-Benzo[c]fluorene DNA adduct formation in different human cells in culture**

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7H-Benzo[c]fluorene (B[c]F) has been known for a long time as a component of complex mixtures such as coal tar or cigarette smoke. B[c]F has been identified recently as a potent lung tumorigen and a major DNA adduct-forming component of coal tar. We have investigated if human cells have the ability to form B[c]F:DNA adducts as detected in lungs of mice treated with B[c]F. MCF7 (human breast cancer), HepG2 (hepatoma) and Caco-2 (colon adenocarcinoma) cells were treated with increasing concentrations (0.2 - 10 µg/ml) of B[c]F for 20 hours. Adduct formation was evaluated using <sup>32</sup>P-postlabeling. A dose response in DNA adduct formation was detected in all three cell lines. In MCF7 and HepG2 cells, two adducts were detected, one of them corresponded to an adduct observed in the lungs of mice treated with B[c]F. This adduct is derived from 3-hydroxy B[c]F while the second, slower migrating adduct, appears to be unique to human cells. In contrast, Caco-2 cells formed at least four adducts. Two of the three most predominant adducts correspond to the two adducts observed in MCF7 and HepG2 cells while the additional predominate and a minor adduct are derived from 3,4-dihydrodiol B[c]F. The adducts derived from 3,4-dihydrodiol B[c]F are similar to those observed in mouse lung and skin. The detection of B[c]F:DNA adducts clearly demonstrates that human cells have the capacity to metabolically activate B[c]F to derivatives that covalently modify DNA. Similarities in the types of B[c]F:DNA adducts detected also demonstrates that B[c]F activation is similar in both human cells and mouse tissue.

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