P 064

Analysis of human DNA adducts with the ^{32}P-HPLC method

C. CARLBERG AND L. MÖLLER
Karolinska Institute, Dept. of Biosciences, Stockholm, Sweden

Humans, in addition to their genetic variability, are chronically exposed to low doses of complex chemical mixtures, of which many are mutagens/ carcinogens. A number of these substances binds covalently to DNA and forms DNA adducts. The origin of these chemical mixtures are likely smoke, air pollutants, pyrolysis products from fried food to mention some sources. Our aims were to determine DNA adduct levels and pattern in autopsy collected tissue from a general Polish and Swedish population. The method used to detect DNA adducts was ^{32}P-HPLC. DNA was digested to 3′-mononucleotide 3′-phosphate and adduct 3′-phosphate with micrococcal nuclease and spleen phosphodiesterase. The enrichment procedure used was butanol extraction, to reduce non-adducted nucleotides. Thereafter the DNA adducts were labeled with ^{32}P-ATP. The whole injection-mixture was injected into the ^{32}P-HPLC equipped with an on-line radioactivity detector. The results indicated a big interindividual variation for each tissue e.g. Polish pancreas had a 200-fold variation and Swedish livers had a 180-fold difference in DNA adduct level. The level of Polish and Swedish DNA adducts were comparable but there was a different DNA adduct pattern.