families (LOD 1.0 to 3.0) and heterogeneous families (LOD 1.8 to 2.1 at the more telemeric peak), Thus, it appears that different phenotypic classifications and environmental risk factors maximize linkage in distinct regions of chr 10. It is therefore likely that multiple genetic risk factors play a role in FIP, with both environmental and phenotypic classifications distinguishing more homogeneous sub-groups.

1996 BLOOD GROUP TYPE B IS ASSOCIATED WITH HIGH BLOOD LEAD LEVELS IN CHILDREN WITH CHRONIC EXPOSURE.

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Children chronically exposed to environmental lead are at risk of suffering severe adverse health effects. The aim of this study was to assess a possible association between blood group type (as a marker of susceptibility) and blood lead concentrations (PbB) above 10mg/dL, value considered as indicative of lead poisoning. The study was conducted in Torreón, Coahuila, Mexico, a city where lead contamination in soil, dust and air around a smelter site has resulted in increased lead body burden in scholar children, living in the vicinity of the major smelter complex of Latin America. We examined PbB in 233 children, 5-7 years old, and determined their blood group type. Blood group type O was the most common type (153 [66.2%] children) followed by types A (24.2%), B (8.2%) and AB (1.3%). Median PbB was 8.39 µg/dL in children with blood group type A, 9.6 µg/dL in children with blood group type O, 10.6 µg/dL in children with blood group type AB and 12.4 µg/dL in children with blood group type B. In univariate analysis higher risks of PbB above 10 µg/dL were observed in children with blood group type B (OR=3.33; P=0.03) and blood group type O (OR=1.87;P=0.05), in male children (Odds Ratio 1.58; P=0.08) and in children living closer to the smelter complex (OR=13.8; P=0.000). After controlling for gender and vicinity to the smelter complex, children with blood group type B had the highest risk of PbB >10 µg/dL (OR=4.48; P=0.02), followed by children with blood group type O (OR=3.12; P=0.006), when compared to blood group type A.

1997 GENETIC SUSCEPTIBILITY TO ORGANOPHOSPHATE TOXICITY IN A GROUP OF MIGRANT SEASONAL FARMWORKER WOMEN OF MEXICAN ORIGIN RESIDING IN TEXAS.

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Organophosphate pesticides (OPs) are currently the most widely used pesticides in the world. Studies have demonstrated that the effect of OPs toxicity can be modified by genetic polymorphisms. These variations can place individuals at a higher risk for the toxic effects of OPs. The serum paraoxonase (PON1) gene at position 192 codifies for the synthesis of the paraoxonase enzyme. This enzyme is important in the hydrolysis of OPs. A common polymorphism (Q192R) has been established, and is mostly responsible for PON1 activity. The frequency of the Q192R polymorphism varies between individuals. Studies in Hispanics are still lacking. The Hispanic population is of special interest to health researchers because of their increasing number in the U.S., and because the majority of individuals occupationally exposed to OPs are of Mexican origin. The overall goal of this study was to predict OP sensitivity in a population of migrant seasonal farmworker (MSF) women of Mexican origin residing in Texas. A total of 200 women were randomly selected from an ongoing study conducted by The Center for Research on Minority Health at UTMDACC. The Q192R PON1 polymorphism was genotyped by Real-Time PCR using the TaqMan System and the serum PON1 Activity was analyzed spectrophotometrically using paraoxon as a substrate. Genotype frequencies were QQ=0.26, QR=0.495 and RR=0.245. The mean PON1 activity among genotypes were QQ=479.7 U/L, QR=969.4 U/L and RR=1518.5 U/L, respectively (p=.001), with the lowest PON1 activity observed among women with the QQ genotype, which makes them particularly vulnerable to OP toxicity. In summary, this study can help determine (1) which Hispanic sub-populations are at a higher risk for OP toxicity and (2) establish future policies regarding OP exposure to help reduce health disparities in Hispanic populations.

1998 PHYSIOLOGICALLY-BASED PHARMACOKINETIC MODELING OF PERSISTENT ORGANIC POLLUTANTS FOR LIFETIME EXPOSURE ASSESSMENT: A NEW TOOL FOR BREAST CANCER EPIDEMIOLOGICAL STUDIES.

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Persistent organic pollutants (POP) have been shown to promote breast cancer development in experimental models. Meta-analyses of epidemiological studies did not support an association between POP exposure and breast cancer incidence in humans. This may be due, in part, to difficulties in relevant exposure assessment and to the lack of tools to adequately estimate blood or tissue POP concentrations at critical time periods of the carcinogenic process. This study aimed to build a physiologically-based pharmacokinetic model (PBPK) which could be used as a tool for the estimation of past internal exposure to POP in epidemiological studies of breast cancer. The developed lifetime PBPK model simulates woman body physiological processes (e.g., growth, pregnancy, breastfeeding) and POP kinetics for given exposure scenarios. Using data on height, weight and age, the model estimates the values of physiological parameters (e.g., organ volume, blood flow and composition) throughout the entire life of a woman. The model allows to consider temporal variations in the daily intake from ingestion. The latter can be based on data obtained from a questionnaire on exposure or on theoretical average scenarios. Several model runs with different physiological profiles were simulated using the POP hexachlorobenzene. Simulations showed that women with a same blood concentration at 55 years of age may have completely different lifetime toxicokinetic profiles. Aside from exposure scenarios, factors that were shown to have the greatest impact on the lifetime toxicokinetic profile are the time and duration of lactation periods and weight history. This PBPK modeling tool will permit researchers conducting environmental epidemiology studies to reduce the uncertainty linked to past POP exposure estimation and to consider exposure time windows that are hypothesized to be mechanistically critical in carcinogenesis. (SH is recipient of a research scholarship from FRSQ)

1999 ESTIMATING HEALTH RISKS IN WORKERS ABOARD CRUDE OIL TANKERS DUE TO EXPOSURES TO N-HEXANE, TOLUENE, AND BENZENE.

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Most health studies of petroleum workers involve exposures at fixed facilities on land (e.g. refineries). There is a paucity of literature regarding the degree to which petroleum workers aboard ships (such as sea-going crude oil tankers) might represent an at-risk population, even though these workers are often aboard the ships in enclosed spaces for extended periods of time. We relied on historical on-board industrial hygiene data, employee work records and self-reported activities to estimate the magnitude of exposure to benzene, toluene, and n-hexane experienced by individuals aboard these vessels. A total of over 65 surveys performed on 15 ships spanning the years 1988 to 2003 were evaluated in this analysis. A Monte-Carlo model was developed that incorporated available concentration information during nine distinct work tasks that comprised a majority of work performed by crew members on these vessels during crude oil loading and while these vessels were underway. It was determined that airborne concentrations were location- and activity-dependent, with the highest levels experienced during work performed in partially enclosed spaces or near tank vents. Lifetime exposures to n-hexane, toluene, and benzene were calculated to be 9.6, 0.7, and 1.1 ppm-year at the 50th percentile and 28.4, 2.6, and 6.1 ppm-year at the 95th percentile. The estimated exposures are substantially below the levels suspected to cause clinical or subclinical neurological effects, and the estimated upper-bound cumulative benzene exposures are below the effects threshold for acute myelogenous leukemia reported in the well-studied "Pliofilm cohort" of rubber industry workers (200-400 ppm-year). Additionally, the estimated exposures are below the levels expected if the contemporaneous permissible exposure limit (PEL) concentrations were experienced over a working lifetime (20,000 ppm-year for n-hexane, 8000 ppm-year for toluene, and 40 ppm-year for benzene). These results are consistent with the available epidemiology literature on seamen aboard crude-oil tankers.

2000 A COMPREHENSIVE REVIEW OF OCCUPATIONAL EXPOSURE TO DIACETYL IN MICROWAVE POPCORN FACILITIES.

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In May 2000, eight former employees of a microwave popcorn packaging plant were reportedly diagnosed with a pattern of respiratory symptoms "consistent with" respiratory obliterative bronchiolitis (OB), a severe and sometimes fatal lung disease. It was suggested that the symptoms were a result of exposure to diacetyl, a