

# Featured Research Studies

J Hazard Mater. 2008 Dec 3. [Epub ahead of print]

## **Assessing hazardous risks of human exposure to temple airborne polycyclic aromatic hydrocarbons.**

Chiang KC, Chio CP, Chiang YH, Liao CM.

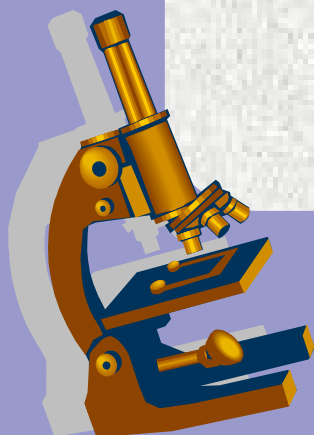
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We proposed an integrated probabilistic risk assessment framework based on reported data to quantify human health risks of temple goers/workers to airborne polycyclic aromatic hydrocarbons (PAHs) from incense burning in typical Taiwanese temples. The framework probabilistically integrates exposure, human respiratory tract, and incremental lifetime cancer risk (ILCR) models to quantitatively estimate size-dependent PAHs exposure in human lung regions and cancer risks for temple goers (moderate and high exposures) and temple workers (extreme exposure).

Our results show that the ILCRs are greater than the acceptable level of  $10^{-6}$  for extreme and high exposure groups through inhalation route. The result also indicates that the higher ILCRs ( $10^{-6}$  to  $10^{-4}$ ) are found in ingestion and dermal contact routes for temple goers/workers. For personal extreme exposure to carcinogenic PAH in the temple, 95% probability total ILCR (TILCR) ( $9.87 \times 10^{-4}$  to  $1.13 \times 10^{-3}$ ) is much greater than the range of  $10^{-6}$  to  $10^{-4}$ , indicating high potential health risk to temple workers. For temple goers with high and moderate exposure groups, however, the 95% probability TILCRs were estimated from  $6.44 \times 10^{-5}$  to  $7.50 \times 10^{-5}$  and  $5.75 \times 10^{-6}$  to  $6.99 \times 10^{-6}$ , respectively.

This study successfully offers a scientific basis for risk analysis due to incense burning to enhance broad risk management strategies for temple indoor air quality.

PMID: 19131162



Environ Pathol Toxicol Oncol. 2008;27(4):303-5.

**The food and drug administration agrees to classify mercury fillings.**

Edlich RF, Cross CL, Wack CA, Long WB 3rd, Newkirk AT.

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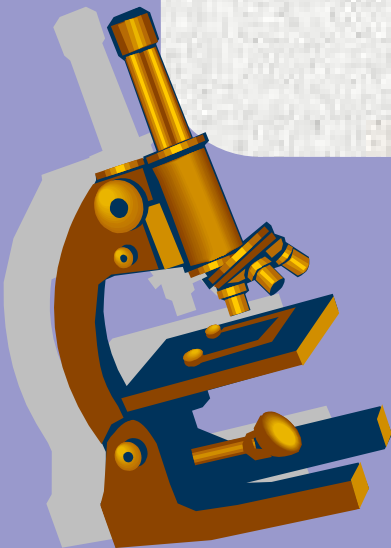
In the United States Court of Appeals of the District of Columbia Circuit, the Appellants Mom's Against Mercury, Connecticut Coalition for Environmental Justice, Oregonians for Life, California Citizens for Health Freedom, Kevin J. Biggers, Karen Johnson, Linda Brocato, R. Andrew Landerman, and Antia Vazquez Tibaul filed a petition for review of Regulatory Inaction by the Food and Drug Administration (FDA).

On Monday June 2, 2008, the lawsuit was settled with the FDA after it agreed to classify mercury fillings. During its negotiation session with the Appellants, the FDA indicated that it would change its website on mercury fillings. The FDA no longer claims that no science exists about the safety of mercury amalgam or that other countries have acted for environmental reasons only.

On its website, the FDA now states the following: "Dental amalgams contain mercury, which may have neurotoxic effects on the nervous systems of developing children and fetus." The FDA also states that "Pregnant women and persons who may have a health condition that makes them more sensitive to mercury exposure, including individuals with existing high levels of mercury bioburden, should not avoid seeking dental care, but should discuss options with their health practitioner."

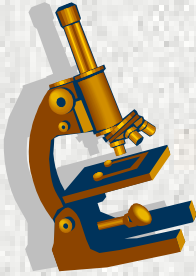
The FDA decision to classify mercury fillings is a reflection of the legislations enacted in Europe and Canada that highlight the neurotoxic effects of mercury fillings.

PMID: 19105536 [PubMed - in process]



### Oxidative stress "extremely powerful" in the airways of children with asthma

Dut R, Dizdar EA, Birben E, Sackesen C, Soyer OU, Besler T, Kalayci O. Hacettepe University School of Medicine, Pediatric Allergy and Asthma Unit. 1: Allergy. 2008 Dec;63(12):1605-9.



**Background:** There is ample evidence for the existence of a systemic oxidative stress in childhood asthma but relatively little information on the oxidant stress in the airways.

**Objective:** To determine the extent of oxidant/antioxidant imbalance and describe its determinants in the airways of asthmatic children including asthma severity and the genotype of the antioxidant enzymes.

**Methods:** One hundred and ten children with mild asthma, 30 children with moderate asthma and 191 healthy controls were included in the study. Exhaled breath condensate (EBC) was collected from all children with EcoScreen((R)). Levels of malondialdehyde were measured as the indicator of oxidative stress, and of reduced glutathione as the indicator of antioxidant defense. Children were genotyped for the presence of null variants of glutathione S transferase (GST) T1 and GSTM1, and ile105val variant of GSTP1. Risk factors were analyzed with multivariate logistic regression.

**Results:** EBC contained significantly higher levels of malondialdehyde and lower levels of reduced glutathione in asthmatic children compared with healthy controls ( $P < 0.001$  for each), whereas there was no difference between mild and moderate asthmatics. Multivariate logistic regression identified asthma as the only independent factor contributing to oxidative stress. Genotypes of the antioxidant enzymes had no effect on the oxidative burden.

**Conclusions:** Asthma is associated with an extremely powerful oxidative stress not only in the systemic circulation but also in the airways.

PMID: 19032232 [PubMed - in process]

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