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1-Hydroxypyrene as a Biomarker of Tobacco Carcinogen Exposure

Polycyclic aromatic hydrocarbons (PAHs), which are formed from the incomplete combustion of smoke, are thought to be carcinogenic in humans. In some parts of Asia there have been unusually high levels of lung cancer in women and it was found these women usually cook with woks daily. Contained in the wok fumes are high levels of polycylic aromatic hydrocarbons and when inhaled may be the cause of the increased lung cancer occurrence. 1-hydroxypyrene (1-HOP), which is found in urine, is a known biomarker of polycyclic aromatic hydrocarbon uptake. Therefore, I have been studying urine obtained from a large number of women from both wok using areas and non-wok using areas. The urine is worked up to remove unwanted compounds and ultimately ran on high performance liquid chromatography (HPLC) in order to determine the levels of urinary 1-HOP. It is our hope that the source of the increased level of cancer in woman residing in this area of Asia can be isolated. With this information education, prevention and other precautions can be used to decrease the occurrence of lung cancer in this area.

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