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Derivatization Kit for Detecting Environmental Pollutant in Human
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TECHNOLOGY NEED
Environmental pollutant detection in humans has become more urgent than ever due to the alarmingly high level of pollutions. Some of the prevalent environmental pollutants that are hazardous to health upon exposure are benzene, toluene, ethylbenzene and xylenes (BTEX). Existing methods for detecting these pollutants in the human body lack specificity and are limited to detection of some metabolites of these compounds. Some even fail to detect low concentration metabolites at low exposure level. Hence, an efficient, high throughput, sensitive, reliable and highly specific bio-monitoring tool is required to simultaneously detect metabolites at both low and high exposure levels to BTEX compounds in routine screening programs in order to establish stable and safe exposure levels.

INVENTION DESCRIPTION/SOLUTION
UT Arlington researchers have developed a robust bio-analytical mass spectrometry method for the simultaneous detection and quantification of BTEX metabolites in body fluids. This technology can be implemented as an effective and valuable tool for routine wellness screening programs for BTEX exposure in various areas. This will help in obtaining a metabolite profile of exposed individuals using a single platform and studying co-exposure interaction effects of these metabolites under different conditions. This method overcomes the limitations of existing analytical methods and detects even trace levels of compounds in the sample. Thus, the developed method is a highly reliable and ultra-sensitive bio-monitoring tool which can be broadly used in screening programs, toxicological and clinical studies.

APPLICATION
- Routine screening programs
- Routine medical surveillance programs
- Occupational safety and health risk assessment
- Epidemiological, toxicological and clinical studies

KEY BENEFITS
- Ultra-sensitive detection
- Accurate simultaneous detection and quantification of BTEX metabolites in biological fluids at low and high exposure levels (co-exposure interaction)
- Detection of trace quantities of target analytes
- Short analysis time, less sample preparation steps and high throughput method

STAGE OF DEVELOPMENT
Prototype

INTELLECTUAL PROPERTY STATUS
PCT/US17/36820