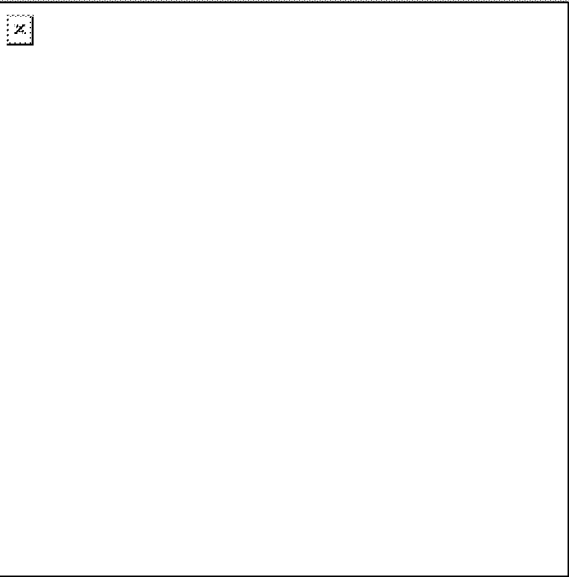


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Priority 3 - Continuous Monitoring

 Shanghai Health study

What is the issue?



Shell has committed \$4m to a \$21M five-year mutli-stakeholder health study in Shanghai, with the goal of better defining the hazards and health risks from exposure to benzene. This research follows a 1997 National Cancer Institute study of benzene-exposed workers in China, which concluded that benzene exposure might cause non-Hodgkin's lymphoma, (NHL). This study, which is part of our commitment to product stewardship, will help clarify previous assumptions regarding benzene health risks and will also help address some recent questions about benzene hazards and exposure. Further, this information will provide the industry with information, which we can use to determine what, if any, improvements are needed in existing protocols/previous assumptions regarding benzene health risks and will also help address some recent questions about benzene hazards and exposure.

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Issue Owner

Nancy Sullivan
Vice President Aromatics & Phenol

Messages

- Shell is contributing to a joint study in Shanghai that aims to better define the hazards and health risks from exposure to benzene as part of ongoing product stewardship and safety and health programs
- A state-of-the-art clinical and molecular laboratory has been built on the Fudan Medical University campus to support the research project and the Shanghai medical community and will remain at Fudan once the project is completed.
- The Joint Sino-US Clinical and Molecular Laboratory (JCML) is a collaborative effort established between the University of Colorado Health Sciences Center and Fudan University. JCML conducts research on occupational exposure to benzene, and studies the causes and effects between the infections of virus/drugs and blood/lymph system diseases.

The directors of the laboratory are Prof. Richard Irons, head of Molecular Toxicology & Environmental Health Sciences Research Program in the University of Colorado Health Sciences Center, and Prof. Fu Hua from School of Public Health, Fudan University. JCML staffs include American and Chinese specialists in hematology, pathology, and molecular biology. A few of the staffs of JCML have PhD and master's degrees, and some staffs have been trained abroad.

JCML consists of sample log-in room, cell culture room, FISH room, molecular biology room, cytogenetics room, flow cytometry room, CBC and other routine examination room, as well as external contact and document handling office. The lab has sophisticated laboratory equipment including automatic chromosome analysis and photo taken systems, automatic biology and chemistry analysis device (Roche), automatic blood corpuscle analysis device (CD3700), immune analysis device (IMx), five-color flow cytometry device (FC500), PCR device, tissue cutting device, temperature/humidity controlling device, ModulyoD device, CyroMed controlled Rate Freezers, Cryoplus Liquid Nitrogen Storage System, and fluorescence microscope, etc.

The project is sponsored by the international Benzene Health Research Consortium. The Consortium consists of British Petroleum, ChevronTexaco, ConocoPhillips, ExxonMobil and Shell Chemical Company. During the study, the Consortium will invest about 10 million US dollars.

JCML is an important part of the Sino-US project of benzene poisoning study. The project includes three tasks:

- Case and control study on acute myelogenous leukemia (AML) and non-Hodgkin's lymphoma (NHL);
- Study on aplastic anemia (AA), myelodysplastic syndrome (MDS), acute myelogenous leukemia (AML), and benzene poisoning disease progression;
- Study on molecular epidemic diseases on benzene exposed workers.

The collaboration has been established between JCML and more than 20 hospitals in Shanghai (mainly third level hospitals). The first class clinical laboratory examinations on blood, bone marrow, and lymphoma will be provided for the patients from the collaborative hospitals. The examinations include:

- Morphology
- Tissue immunology
- Flow cytometry
- Chromosomes
- FISH and recombination of the genes
- Molecular biology
- CBC, and diagnoses of leukemia and lymphoma according to WHO's standard classifications.

JCML is also responsible for other tasks of the study, including analyzing EB, HIV, C-liver and HHV virus from patients' blood samples; analyzing blood and chromosomes of the blood and bone marrow samples from the workers who exposed to benzene; studying on the genes which are susceptible to benzene; establishing lymph cell systems and culturing the bone marrow cells.

The study has been approved by related departments of Central and Shanghai governments, and by the ethical institutes of both China and USA. The study is also strongly supported by each big hospital in Shanghai, by SCDC and IPHS. The establishment of JCML will certainly make important contributions to Shanghai medical institutes, to the diagnoses, treatment and research of leukemia and lymphoma, and to the enhancement of occupational and labor protection.

