Microbiomes in Transition
Seminar Series

Pacific Northwest
NATIONAL LABORATORY
Proudly Operated by Battelle Since 1965

Chemical Exposure and Effect Studies in NJMU Birth Cohort

Presented by:

Professor Yankai Xia

Nanjing Medical University

Abstract: NJMU Birth Cohort locates in Yangtze River Delta Region, China, in which we chose six representative cities and established corresponding study centers in local Maternity and Child Health Hospitals. These centers could cover population from multiple provinces in the country. Pregnant women in the first trimester that registered in the hospitals mentioned above were potential candidates. With strict exclusion criteria, we recruited the whole family of the eligible pregnancy as a unit after informed consent, in order to acquire comprehensive information from both parents and their children. From that day on, participants would be regularly followed up until the ninth year after delivery. Questionnaires with detailed data, multi-type biosamples and integrated clinical records were collected according to the protocols. Selected biosamples in the cohort are stored in our advanced biobank, including blood, urine, semen, placenta, amniotic fluid, umbilical cord blood, breast milk and meconium. By now, over 11,000 family units have been enrolled in this cohort. In general, we aim to recruit 30,000 households from first trimester at last. In June of 2016, we began to establish a China National Birth Cohort (CNBC) including 32 reproductive medicine centers in China.

Studying chemical exposure during early life and its effects is one of the key aims of this cohort. We have established multiple platforms for the detection of environmental chemicals based on Q-E-Obitrip, UPLC-MS/MS, GC-MS/MS, ICP-MS etc. Mature methods have been developed on these platforms, which could be used in detecting the inner exposure of pesticides, polybrominated biphenyls, polychlorinated biphenyls, dioxin, metals, herbicides, metabolites, environmental phenols, volatile organic compounds, phthalates, perfluorochemicals, phytoestrogens, polycyclic aromatic hydrocarbons, tobaccos and antibiotics. These methods are being conducted to profile environmental chemical exposures on parental and fetal biosamples. We have also employed 16S rRNA gene sequencing to identify potential effects caused by environmental chemicals on gut microbiota in newborns. The acquired baseline data of study population might reveal the relationship between chemical exposure and maternal-fetal health, and provide valuable information for the risk evaluation of environmental chemicals. This cohort study could be of great sense in the field of public health.

Date:
July 28, 2016

Location:
CSF/Darwin Rm (1007)

Time: 1:00 PM

U.S. DEPARTMENT OF ENERGY

Host: Janet Jansson, 5-3982

Monica Moffett, 5-2561