

Summary of the meeting with Dr. Christopher Lau

1. Personal profile

(1) Name

Dr. Christopher Lau

(2) Affiliation

Chief, Developmental Toxicology Branch, Toxicity Assessment Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency

(3) Major professional experiences (only selected ones)

Ph.D. in Pharmacology (Duke University, 1982)

Pharmacologist, Reproductive Toxicology Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency

Lead Research Biologist, Reproductive Toxicology Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency

Adjunct Assistant Professor, Department of Pharmacology and Cancer Biology, Duke University Medical Center

Adjunct Professor, Department of Molecular Biomedical Sciences, College of Veterinary Medicine, North Carolina State University

Member of Society for Neuroscience, Teratology Society, Society of Toxicology, International Society for Developmental Origins of Health and Disease

Editorial Board, *Toxicological Sciences*, *Toxicology*, *Reproductive Toxicology*, *Neurotoxicology and Teratology*, *Brain Research Bulletin*, *PPAR Research*

External Examiner for doctoral thesis at Faculty of Science, University of Ottawa, Canada; Department of Biochemistry and Biophysics, Stockholm University, Sweden; Department of Materials and Environmental Chemistry, Stockholm University, Sweden.

(4) Areas of expertise

Developmental toxicology; Birth defects; Biochemical pharmacology; Biochemical toxicology; Risk assessment modeling; Developmental physiology; Developmental neurobiology

2. Meeting Specifications

(1) Date

July 27 (Friday), 2012

(2) Venue

Special Conference Room, NIES

(3) Participants

Dr. Christopher Lau

Dr. Shinichiro Ohgaki, President

Mr. Yoshiro Kaburagi, Vice President

Dr. Shoji Nakayama, Head, Integrated Health Risk Assessment Section, Center for Environmental Health Sciences

Dr. Hideyuki Shimizu, Manager, International Coordination Office

(4) Discussion Procedure

To begin, President Ohgaki presented an overview of NIES, and indicated to the advisor the following three general topics as guiding points for discussion:

(A) Distinctive features of NIES in the areas of the advisor's specialty

(B) Distinguished features of NIES as a research institution involved with the environment, and points of expectation

(C) Points that NIES should address and strengthen

Dr. Lau was then shown around the two facilities with the highest correspondence to his fields of specialty (Center for Environmental Measurement and Analysis; Center for Environmental Health Sciences), by affiliated researchers, while conducting a frank exchange of opinions with these researchers. Subsequently, Dr. Lau offered his comments (see below) to President Ohgaki, based on the information provided, followed by wide-ranging discussions between the attendees.

3. Comments by Dr. Lau

(1) A distinctive feature of NIES is that it covers a wide range of topics in environmental research, in an integrated manner

I found that the emphasis of NIES's research activities in the areas of my specialty is very well focused on the environment, instead of being specific to toxicology. This gives the institute a comprehensive scope in the field of environmental research. It appeared to me that NIES deals with a very broad range of environmental issues, including natural disasters and the sources of man-made pollution, while my laboratory at EPA is specialized in toxicity characterization and health risk

assessment of chemicals found in the environment.

However, under some circumstances, the research activities at the EPA laboratories resemble those at NIES. For instance, after the oil spill at the Gulf of Mexico, our Division in Florida has conducted research to evaluate the ecological effects from the accident. This research is still ongoing, with a particular emphasis on investigation of the long-term environmental impacts. Like the recent disasters in Japan, many useful lessons can be learnt, which may serve for a better preparation in the future.

(2) NIES has adopted modern research methods, and this could be cited as one of its strengths

In addition, I recognized that NIES researchers use a variety of contemporary methods of discovery and cutting-edge research tools and analysis, such as toxicogenomics. I believe this strategy and approach is one of the strong points of NIES. Similarly at EPA, we have recently made a concerted effort to apply the high-throughput, *in vitro* methods toward computational modeling, in order to predict the adverse health effects of the multitude of chemicals found in the environment. This approach is a necessity at EPA where, unlike NIES, the budget for animal testing is limited and the sentiment against the use of animals in research is ever growing.

(3) NIES has great potential to play the role of the leading research institute in the resolution of many environmental issues both domestic and international, and it should strengthen collaborative relationships with countries in every region of the world

NIES has great potential to assume the role of the leading institution in solving environmental problems, both in Japan and in other countries. It is clear that one country cannot do everything alone, and that mutual collaboration is thus imperative. As a nation where natural resources are rather limited, Japan must develop smart strategies to develop energy and food sources, but also has the responsibility to protect the environment.

It is encouraging that NIES has already established and effectively maintains strong relationships with neighboring countries, such as those in East Asia. I hope that NIES can gradually extend such fruitful relationships to countries in other regions.

(4) NIES plays an important role in communicating its research outcomes and other environmental information to the public and policy makers, which should be developed further

I would like to emphasize the importance of communication between research institutions and both the public and policy makers. Ultimately, sustainability is the major concern for everyone. It is therefore the role of NIES and EPA to provide the key environmental information to the public and policy makers.

I am aware that NIES has economists to work with. It is important that environmental sciences be integrated with economics for sound policy decisions.

I also think that events such as the NIES Open House are extremely useful ways to disseminate research outcomes to the public in an understandable manner. At EPA, we employ a writer who is dedicated to do this kind of job – translation of science to the public.

(5) NIES has a mission to effectively use the information obtained from its environmental research and is in a position to play a pioneering role to this end

I believe it is the mission of NIES to utilize the information obtained through the effective implementation of research. Many institutions across Japan as well as outside Japan require access to such information. NIES is in a position to play a pioneering role in the use of information from environmental research. For instance, there exists the potential for NIES to collaborate with local/regional clinics (public health agencies) and investigate whether exposure to chemicals in the environment (and consumer products) has significant effects on human health.

(6) International research collaboration is effective and thus there is merit in NIES and EPA working together to solve environmental pollution issues

Nowadays, the world is globally connected; there is merit in multiple institutions working closely together. If there are cases when NIES researchers are seeking to specific information regarding the potential harmful effects of environmental contaminants on humans, they can readily contact us at EPA and search our database. Conversely, our investigators can learn from the valuable experiences and findings from NIES research. Indeed, our countries have similar, if not identical problems involving contamination of the environment. As such, research collaboration would be of benefit to both sides.

(7) There is potential for NIES and EPA to collaborate to train younger generations of researchers, and it should strengthen collaborative relationships on a practical level by means of the exchange of personnel, etc.

I would also like to mention the potential for NIES and EPA to collaborate in order to train younger generations of researchers. Like NIES, EPA is facing the challenges of succession: how to transfer the knowledge and experiences of aging (and soon to retire) researchers to the young investigators who may possess new ideas and enthusiasm, but little experience. Of course, at EPA, our problem is compounded by budgetary constraints, which offer fewer opportunities to our young scientists.

In an effort to make the best of such circumstances, we try to train promising young researchers and subsequently let them go to work in industry. This training endeavor, though relatively limited to date, has been extended to international scholars, where early and mid-career investigators would spend a year or two in our laboratories for exchange of research ideas and novel experimental techniques.

I hope that NIES and EPA can collaborate with each other by means of such programs, even if it is over short periods of time. As it stands, to further strengthen ties between the two institutes, I would encourage our continued collaboration and a consolidated relationship at the working level between laboratories, rather than entering into an overarching government-level agreement.



NIES President,
Dr. Shinichiro Ohgaki
(left) and
International Advisor,
Dr. Christopher Lau
(right)

ラウ博士 (右) と
大垣理事長 (左)

Discussions between the
International Advisor and the
NIES President's Office

理事室との意見交換



Exchange of views on research
outcomes at the Center for
Environmental Health Sciences

環境健康研究センターでの
研究説明と意見交換

Group photograph after the
conclusion of discussions

会議終了後の集合写真

