

2013 China-US Joint Research Center Summer Workshop in Beijing, China

Workshop Topic: Bioreporters and their applications for the detection of toxicity and endocrine disrupting chemicals in the environment.

Location: State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences in Beijing, China

(中国科学院生态环境研究中心，环境化学与生态毒理学国家重点实验室)

Dates: May 20 to June 10, 2013.

Instructors: Melanie Eldridge holds a Ph.D. in Microbiology from the University of Tennessee, Knoxville, USA. She has worked on the genetic engineering, validation, and use of bioluminescent yeast-based bioassays for the detection of endocrine active compounds and toxicity in numerous types of samples. Jun Wang is a Ph.D. candidate at the University of Tennessee who is currently working on using genetically modified yeast to detect endocrine active and toxic substances in wastewater treatment systems. He also uses computational modeling to study the interactions of chemicals with the human estrogen receptor.

Course Description: This intensive summer course introduced attendees with a strong biology background to the practice of analyzing samples for estrogenic, androgenic, and toxic substances. The first week's course focused on introducing participants to use of the strains *Saccharomyces cerevisiae* BLYES, BLYAS, and BLYR. The second week focused on analysis of participants' environmental samples.

Students, postdocs and research scientists affiliated to Chinese Academy of Science were invited to attend this workshop. The workshop started with an overview lecture on the development and application of bioreporter technologies in the field of environmental monitoring. Then yeast bioluminescent bioreporters (*Saccharomyces cerevisiae* BLYES, BLYAS, and BLYR) were introduced as specific demonstrations for their usage on detecting estrogenicity, androgenicity and toxicity in environmental samples. Later the workshop emphasized on providing attendees hands-on practice of using yeast bioluminescent bioassay for environmental samples testing. Aiming to help attendees mastering the workflow of yeast bioluminescent bioassay in order to apply it in their future researches, each individual in the workshop participated in all the essential aspects of the bioassay including preparation of synthetic yeast media, growth and maintenance of genetically engineered yeast, serial dilution of samples to generate dose-response curves as well as data analysis (sigmoidal dose response curve, linear regression). By the end of the workshop, each attendee were exposed to the essential knowledge and techniques to properly maintain and perform the bioassay as well as processing their own samples using these strains to detect and quantify estrogenic, androgenic and toxic substances.

As part of the China-US Joint Research Center for Ecosystem and Environmental Change, this summer workshop provided great opportunity for state-of-the-art environmental technologies to be communicated between environmental scientists between US and China. Several research scientists at Chinese Academy of Science indicated strong interests in incorporating the yeast

bioluminescent bioassay in their own environmental studies. Attendees also think that such workshop helps environmental scientists from different background to discuss and exchange ideas about critical environmental issues. Such communication is especially valuable as many emerging environmental problems nowadays need to be considered from global perspective and can only be tackled through collective efforts of the entire world.

China-U.S. Joint Research Center for Ecosystem and Environmental Change
中美生态与环境变化联合研究中心

生物感应器及其在环境样品毒性与激素活性检测领域的应用培训
Bioreporters and their applications for the detection of toxicity and endocrine disrupting chemicals in the environment

随着社会工业化的发展，人们大量使用各种人造化学物质，许多化合物具有与天然激素类似的功能，能够抑制或干扰免疫系统、神经系统和内分泌系统的正常功能，这些物质被称为环境内分泌干扰物质。对于大量通过各种途径进入环境中的化学物质，其内分泌干扰效应并不明确。如何有效的对环境内分泌干扰物进行筛选和识别，进而研究其在生物体内的作用机制评价其毒理效应是进行内分泌干扰物研究首先要解决的关键问题之一。

由中美生态与环境变化联合研究中心和中国科学院生态环境研究中心联合主办的“生物传感器及其在环境样品毒性与激素活性检测领域的应用”培训班定于2013年5月20日-6月10日在北京生态环境研究中心举行。该培训向所有研究生、博士后及科研人员（免费）开放。

培训内容：

学习使用基因工程改造的生物发光酵母(Bioluminescent *Saccharomyces cerevisiae* BLYES, BLYAS, and BLYR) 进行环境样品毒性、雌激素活性及雄激素活性的检测。（与会者无需具有生物检测实验的经验）

培训人：Dr. Melanie Eldridge, Jun Wang (汪俊)

美国田纳西大学环境生物技术研究中心

(Center for Environmental Biotechnology, University of Tennessee)

培训地点：中科院生态环境研究中心环境科学楼

参加培训的人员要完成环境样品处理和生物检测的全过程，为便于安排具体实验操作，请参加培训的同学与老师提前报名（5月18日前），[报名信息请发送至 bsmsong@cees.ac.cn](mailto:bsmsong@cees.ac.cn)，具体培训安排将通过邮件通知。





