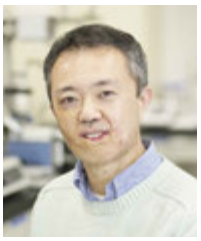
Department of Environmental Bioscience

Laboratory of Environmental Analytical Chemistry

STAFF	Associate Professor Takeshi OHURA
TEACHING	Analytical Chemistry Environmental Analytical Chemistry Instrumental Analysis Advanced Material Cycling Systems (MC)



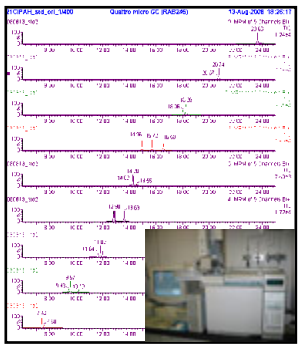
Associate Professor
Takeshi OHURA

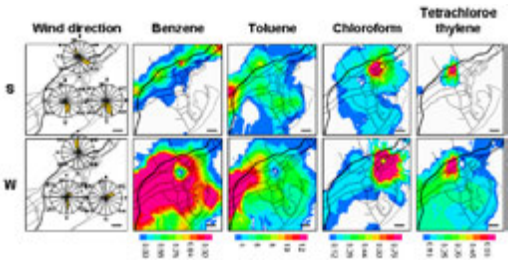
Research

MOLECULAR EVIDENCE OF ENVIRONMENTAL CHEMICALS
Environmental contaminants and sustainable materials

➢ Environmental behaviors
- Exploration of environmental contaminants -

Collection from sediment and air samples



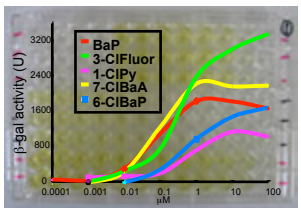


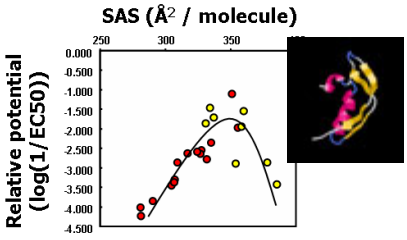
The collected air pollutants are analyzed by using HPLC and GC/MS, suggesting their distribution and sources.

➢ Biological effects
- Risks of exposure to environmental contaminants -

Toxic assessments of environmental pollutants using mice and human cells

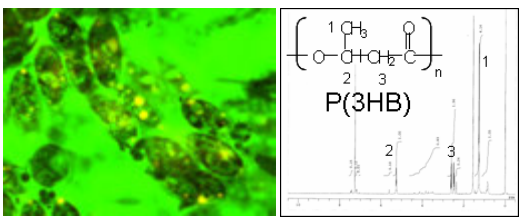
Bioassay using recombinant yeast





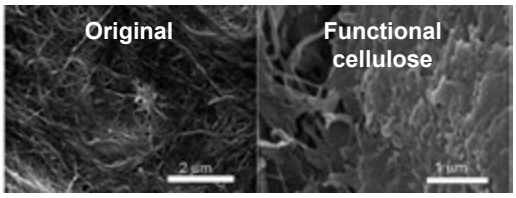
Structure-activity correlation between AhR activities and molecular surface areas of chemicals

➢ Development of low environmental burden & functional materials - Efficient use of biomass -



Biosynthesis of biodegradability polymers (biopolymer showing yellow dots in cells)

SEM of nano-cellulose fibers



Novel construction of functional bio-based materials

Recent publications:

- Ohura T, Morita M, Kuruto-Niwa R, Amagai T, Sakakibara H, Shimoi K. (2010) Differential action of chlorinated polycyclic aromatic hydrocarbons on aryl hydrocarbon receptor-mediated signaling in breast cancer cells. *Environ. Toxicol.*, 25, 180-187.
- Ohura T, Sawada K, Amagai T, Shinomiya M. (2009) Discovery of novel halogenated polycyclic aromatic hydrocarbons in urban particulate matters: Occurrence, photostability, and AhR activity. *Environ. Sci. Technol.*, 43, 2269-2275.
- Ohura T. (2009) "Chemical characterization of ambient particle: PAHs and chlorinated PAHs", *In* Airborne Particulates (M. Cheng & W. Liu, Eds.), NOVA Science Publishers, NY, pp 157-170.
- Ohura T, Fujima S, Amagai T, Shinomiya M. (2008) Chlorinated polycyclic aromatic hydrocarbons in the atmosphere: Seasonal levels, gas-particle partitioning, and origin. *Environ. Sci. Technol.*, 42, 3296-3302.
- Ohura T, Morita M, Makino M, Amagai T, Shimoi K. (2007) Aryl hydrocarbon receptor-mediated effects of chlorinated polycyclic aromatic hydrocarbons. *Chem. Res. Toxicol.*, 20, 1237-1241.