Yumi Abiko, Ph.D.
Date of Birth: November 11, 1984
Affiliation:
Environmental Biology Laboratory,
Faculty of Medicine, University of Tsukuba
E-mail address: yumi.abiko@md.tsukuba.ac.jp

Academic career

2008 BS in Health Science, Department of Biomedical Laboratory Sciences, Shinshu University School of Medicine, Japan

2010 MS in Environmental Science, Graduate School of Life and Environment Sciences, University of Tsukuba, Japan

2013 PhD in Medicine, Doctoral Program in Biomedical Sciences, Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan

Professional/ Scientific Career

2012–2014	Research Fellow	Japan Society for the Promotion of Science
2014–2014	Research Fellow	Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan
2014, June–	Assistant Professor	Faculty of Medicine, University of Tsukuba, Japan

Awards

2011 Young Investigation Award, Forum2012, Kanazawa, Japan

2013 Society of Toxicology Graduate Student Travel Award, 52nd Annual Meeting and ToxExpo, San Antonio

2013 Young Researcher's Award, The 19th Symposium of the Japanese Arsenic Society, Fukuoka, Japan

2014 Young Investigation Award, The 13rd Molecular Preventive Medicine, Wakayama, Japan

2014 Sakurai Award, The 33rd Annual Meeting on Environmental Pollutants; Chalk Talk 2014 meeting, Kanazawa, Japan

2015 Investigator's Award, The 42nd Annual Meeting of the Japanese Society of Toxicology, Kanazawa, Japan

2015 Research Encouragement Award, The 10th Metal Bioscience Meeting, Nagoya, Japan

2016 Young Investigation Award, The 9th International Conference on the Biology, Chemistry, and Therapeutic Applications of Nitric Oxide, Sendai, Japan

2016 Tanabe Award, The 43th Annual Meeting of the Japanese Society of Toxicology, Nagoya, Japan

Research interests

I have focused on cellular response to oxidative and electrophilic stress causes by exposure of environmental chemicals (e.g., quinones, aldehydes, and methylmercury) and role of persulfide and polysulfide species in prevention of health risk of environmental chemicals exposure.

Selected publications (Original article, 16; Review, 2; Book, 3)

1. **Abiko, Y.**, Shinkai, Y., Sumi, D., and Kumagai, Y., Reduction of arsenic-induced cytotoxicity through Nrf2/HO-1 signaling in HepG2 cells, *Journal of Toxicological Sciences*, 35, 419-423 (2010)
2. **Abiko, Y.**, Miura, T., Phuc, BH., Shinkai, Y., and Kumagai, Y., Participation of covalent modification of Keap1 in the activation of Nrf2 by *tert*-butylbenzoquinone, an electrophilic metabolite of butylated hydroxyanisole, *Toxicology and Applied Pharmacology*, 255, 32-39 (2011)
3. **Abiko, Y.** and Kumagai, Y., Interaction of Keap1 modified by 2-*tert*-butyl-1,4-benzoquinone with GSH: evidence for *S*-transarylation, *Chemical Research in Toxicology,* 26, 1080-1087 (2013)
4. Yoshida, E. [*], **Abiko, Y. [*],** Kumagai, Y., Glutathione adduct of methylmercury activates the Keap1-Nrf2 pathway in SH-SY5Y Cells, *Chemical Research in Toxicology,* 27, 1780-1786 (2014) *E.Y. and Y.A. contributed equally to this work.
5. **Abiko, Y.**, Mizokawa, M., Kumagai, Y., Activation of the Kelch-like ECH-associated protein 1 (Keap1)/NF-E2-related factor 2 (Nrf2) pathway through covalent modification of the 2-alkenal group of aliphatic electrophiles in *Coriandrum sativum* L., *Journal of Agricultural and Food Chemistry*, 62, 10936-10944 (2014)
6. **Abiko, Y.**, Luong, NC., Kumagai, Y., A Biotin-PEAC5-maleimide labeling assay to detect electrophiles. *Journal of Toxicological Sciences,* 40, 405-411 (2015).
7. **Abiko, Y.**, Yoshida, E., Ishii, I., Fukuto, J. M., Akaike, T., Kumagai, Y., Involvement of reactive persulfides in biological bismethylmercury sulfide formation. *Chemical Research in Toxicology*, 28, 1301-1306 (2015).
8. **Abiko, Y.**, Ishii, I., Kamata, S., Tsuchiya, Y., Watanabe, Y., Ihara, H., Akaike, T., Kumagai, Y., Formation of sulfur adducts of *N*-acetyl-*p*-benzoquinoneimine, an electrophilic metabolite of acetaminophen *in vivo*: participation of reactive persulfides. *Chemical Research in Toxicology,* 28, 1796-1802 (2015).
9. **Abiko, Y.**, Puga, A., Kumagai, Y., Covalent binding of quinones activates the Ah receptor in Hepa1c1c7 cells. *Journal of Toxicological Sciences*. 40, 873-886 (2015).
10. Kumagai, Y., **Abiko, Y.**, Luong, NC., Chemical toxicology of reactive species in the atmosphere: two decades of progress in an electron acceptor and an electrophile. *Journal of Toxicological Sciences*, 41, SP37-SP47 (2016).

11. **Abiko, Y.**, Lin, FY., Lee, H., Puga, A., Kumagai, Y., Quinone-mediated induction of cytochrome P450 1A1 in HepG2 cells through increased interaction of aryl hydrocarbon receptor with aryl hydrocarbon receptor nuclear translocator. *Journal of Toxicological Sciences*, 41, 775-781 (2016)
12. Unoki, T.[*], **Abiko,Y.[*],** Toyama, T., Uehara, T., Tsuboi, K., Nishida, M., Kaji, T., Kumagai, Y., Methylmercury, an environmental electrophile capable of activation and disruption of the Akt/CREB/Bcl-2 signal transduction pathway in SH-SY5Y cells. *Scientific Reports,* 6, 28944 (2016). *T.U. and Y.A. contributed equally to this work.
13. **Abiko, Y.**, Sha, L., Shinkai, Y., Unoki, T., Luong, NC., Tsuchiya, Y., Watanabe, Y., Hirose, R., Akaike, T., Kumagai, Y., 1,4-Naphthoquinone activates the HSP90/HSF1 pathway through the *S*-arylation of HSP90 in A431 Cells: Negative regulation of the redox signal transduction pathway by persulfides/polysulfides. *Free Radical Biology and Medicine,* 104, 118-128 (2017).
14. Kumagai, Y., and **Abiko, Y**., Environmental electrophiles: Protein adducts, modulation of redox signaling and interaction with persulfides/polysulfides. *Chemical Research in Toxicology*, 30, 203-219 (2017).