

Poster #3

Administration of Bisphenol A During Pregnancy Results in Direct Fetal Exposure.

K. Uchida^{1,2,3}, A. Suzuki^{3,4}, D. Buchanan^{1,3}, H. Watanabe^{1,3}, Y. Kobayashi⁵, J. Suzuki⁶, K. Asaoka⁶, C. Mori⁷. and T. Iguchi^{1,2,3,4}.

¹Center for Integrative Bioscience, Okazaki National Research Institutes, Okazaki, Aichi;

²Department of Molecular Biomechanics, Graduate University of Advanced Studies,

³CREST, JST, Tokyo; ⁴Graduate School of Integrated Science, Yokohama City

University, Yokohama; ⁵Technical Laboratory, Analysis Center Corporation, Tokyo; ⁶

Primate Research Institute, Kyoto University, Inuyama, Aichi; ⁷Department of Anatomy,

School of Medicine, Chiba University, Chiba, Japan.

e-mail: taisen@nibb.ac.jp, Tel: +81-564-55-7525, Fax: +81-564-55-7526

Perinatal exposure to estrogen induces irreversible changes in estrogen target tissues. Bisphenol A (BPA), a constituent of epoxy and polystyrene resins found in food-packaging and used in dentistry has been shown to mimic estrogen both *in vivo* and *in vitro* at doses in the range of human and wildlife exposures. We previously found that low dose BPA *in utero* accelerated vaginal opening in mice (Honma *et al.*, unpublished observation). In this study, we investigated whether or not the *in utero* effect of BPA on vaginal opening might be associated with direct fetal exposure. On day 17 of pregnancy, mice were given a single s.c. injection of 100 µg BPA/g B.W. and sacrificed at 0.5, 1, 2, 3, 6, 12 and 24 h later. BPA contents of maternal and fetal sera and various organs were analyzed by gas chromatography-mass spectrometry (GC-MS). Surprisingly, BPA was found in maternal and fetal sera, liver, brain, placenta, and fetal uteri and testes as early as 30 min after injection. We also found BPA in human umbilical cord (0.85-3.11 ng/g wet tissue; Takada *et al.*, 1998). Thus, BPA levels were also investigated in primates. Japanese monkeys were injected with 50 mg BPA/kg B.W. on day 150 of pregnancy, and fetuses were collected 1 h later. BPA was found in all organs investigated including fetal liver, kidney, brain and umbilical cord. These results indicate that the maternal placental barrier can not protect the fetus from the consequences of direct BPA exposure.