Re: Proposed Listing of Bisphenol A as a Developmental and Reproductive Toxicant on California’s Prop 65 list.

Dear Office of Environmental Health Hazard Assessment,

Bisphenol A (BPA) is of significant concern to the health of Californians due to ubiquitous exposures among the population, as identified by biomonitoring studies, and the wide range of health impacts linked to current levels of exposure.

OEHHA staff scientists have prepared an excellent document that is very thorough and reviews developmental effects and male and female reproductive toxicity. Of particular concern from the available scientific evidence is the potential for adverse health effects from exposure that occurs during critical windows of development, particularly during the prenatal period.

Numerous animal studies demonstrate that BPA is rapidly transported through the placenta and also accumulates in the placenta and the fetus, such that levels surpass maternal levels shortly after dosage [1-3]. In addition, the rate of clearance from rodent fetal circulation is slower than from maternal circulation [4]. BPA has been measured in human serum (reviewed in [3]), urine (reviewed in [3]), breast milk [5-7], amniotic fluid [8-10], placenta [11], umbilical cord blood [11-13], semen [14] and follicular fluid [9]. Reported detection frequencies range from 88-100% in all but one study [3, 12].

BPA is metabolized through phase II hepatic glucuronidation and sulfation reactions in humans and rodents. Both glucuronidation and sulfation decrease the estrogenic activity of BPA [15], thus reducing the potency of BPA. Data show that glucuronidation capacity is limited or absent in the undeveloped fetal liver [16-18], and metabolic transformation of BPA via glucuronidation is anticipated to be substantially reduced. Thus it is anticipated that unconjugated BPA could be higher in the fetus compared to maternal levels. Thus, the increased vulnerability of the fetus from higher levels of unconjugated BPA is an important component of the evaluation. Some limited human data suggest that unconjugated levels of BPA could be higher in the fetus via measurements of amniotic fluid [9].

The Endocrine Society has recently recognized the need to consider critical scientific information related to developmental exposures in their recent scientific statement on endocrine disrupting chemicals, including "The Endocrine Society is concerned that the public may be placed at risk because critical information about potential health effects of endocrine disrupting chemicals to which Americans are exposed is being overlooked in the development of federal guidelines and regulations[19]."

In summary, the weight of scientific evidence of a multiplicity of reproductive and developmental endpoints and ubiquitous exposures, particularly to the fetus, support a listing of BPA on the Prop 65 list.

Sincerely,

Tracey J. Woodruff, PhD, MPH

*Associate Professor and Director
Program on Reproductive Health and the Environment
Department of Obstetrics, Gynecology, and Reproductive Sciences
UCSF

*for identification purposes only


