Environ Health Perspect

DOI: 10.1289/EHP3189

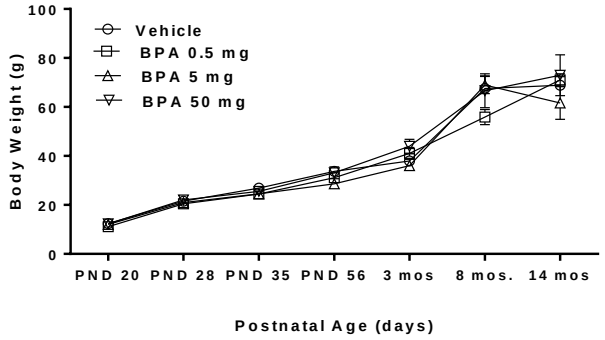
Supplemental Material

Evaluation of Prenatal Exposure to Bisphenol Analogues on Development and Long-Term Health of the Mammary Gland in Female Mice

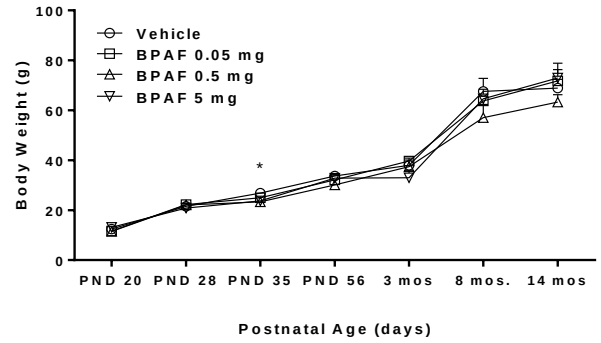
Deirdre K. Tucker, Schantel Hayes Bouknight, Sukhdev S. Brar, Grace E. Kissling, and Suzanne E. Fenton

Table of Contents

A)



B)



C)

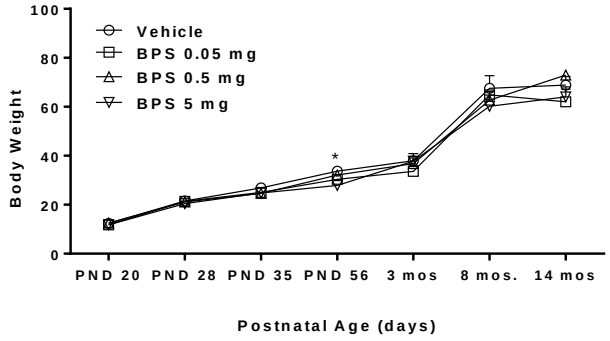


Figure S1. Pubertal and adult body weight gain in female offspring of CD-1 dams treated from gestation day (GD) 10 - GD 17 with A) bisphenol A (BPA), B) bisphenol AF (BPAF), or C) bisphenol S (BPS). * $p < 0.05$ is statistically significant on PND 35 in BPAF 0.5 mg/kg/bw and BPS 5 mg/kg/bw groups compared to vehicle control using ANOVA and a Dunnett's t-test. Litters: Vehicle (n = 9), BPA 0.5 (n = 12), BPA 5 (n = 12), BPA 50 (n = 9), BPAF 0.05 (n = 9), BPAF 0.5 (n = 11), BPAF 5 (n = 11), BPS 0.05 (n = 12), BPS 0.5 (n = 11) and BPS (n = 10).

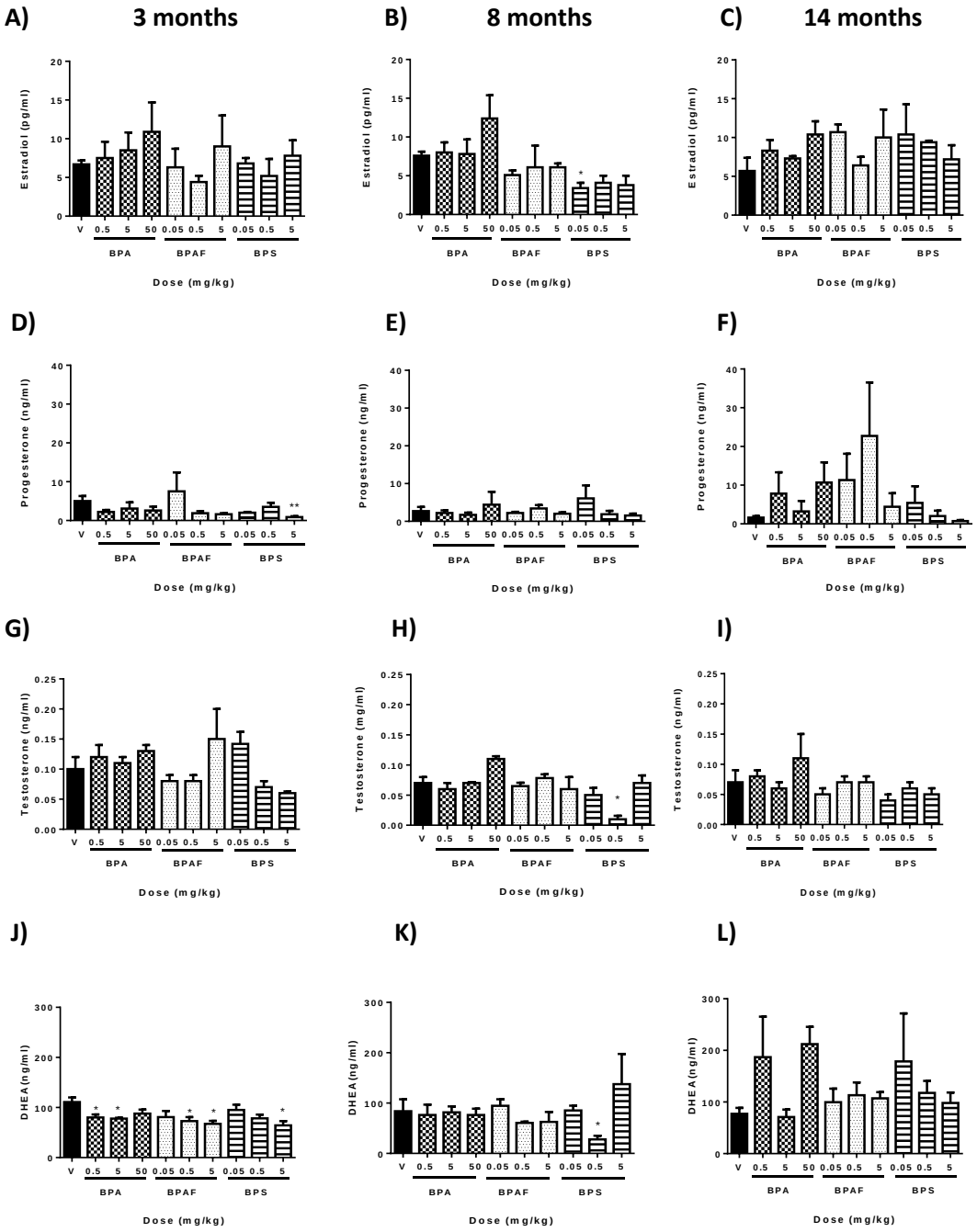


Figure S2. Effects of prenatal bisphenol A (BPA), bisphenol AF (BPAF), or bisphenol S (BPS) exposure on female serum hormone levels at 3, 8, and 14 months. A, D, G, and J = 3 months; B, E, H, and K = 8 months; and C, F, I, and L = 14 months. Mean ± SEM. Litter n=2-6 per treatment group. *p<0.05 and **p < 0.01 is statistically significant compared to vehicle control by ANOVA and Dunnett's test.

Table S1. Record of vehicle and treated animals ≥ 3 months of age with mammary gland diagnoses by age

Age at Necropsy (Weeks)	11-20*	21-30	31-40*	41-52	53 - 68*†	Total between weeks 1-68
Total number of animals	90 [2]	[4]	54 [1]	[27]	140 [10]	284 [44]
Inflammation	12		1	6	74	93
Ductal Squamous metaplasia			1		15	16
Lobuloalveolar hyperplasia			1	4	19	24
Miscellaneous (cyst, keratin, hemorrhage)					9	9
Histiocytic Sarcoma					1	1
Fibroadenoma					1	1
Papillary Carcinoma					1	1
Squamous Cell Carcinoma					2	2
Adenocarcinoma/Carcinoma				2	1	3
Total Neoplasia				2	6	8

[n] Animals with dermatitis, moribund, or found dead. Reason for death was determined or pathology was conducted, when possible.

*Includes animals from scheduled necropsies at 3 mo (12 wk), 8 mo (32 wk) or 14 mo (56 wk)

†Some animals may have had multiple mammary diagnoses

Table S2: Number of days (d) spent in estrus, diestrus and proestrus following in utero exposure to bisphenol A (BPA), bisphenol AF (BPAF), or bisphenol S (BPS) during postnatal days (PND) 63-83

	Estrus (d)	Diestrus (d)	Proestrus (d)
Vehicle	7.2 ± 4.0	11.7 ± 3.3	2.0 ± 1.0
BPA 0.5 mg/kg	7.6 ± 2.9	11.4 ± 2.7	1.2 ± 1.3
BPA 5 mg/kg	7.7 ± 2.7	11.0 ± 2.4	1.0 ± 0.6*
BPA 50 mg/kg	6.1 ± 2.4	12.1 ± 3.1	1.4 ± 1.2
BPAF 0.05 mg/kg	7.3 ± 2.2	11.2 ± 2.9	1.5 ± 1.2
BPAF 0.5 mg/kg	7.0 ± 2.3	11.7 ± 2.6	1.6 ± 1.0
BPAF 5 mg/kg	5.6 ± 2.4	12.8 ± 1.4	1.4 ± 0.7
BPS 0.05 mg/kg	7.5 ± 3.3	11.2 ± 3.8	1.7 ± 1.0
BPS 0.5 mg/kg	6.0 ± 3.7	12.4 ± 4.0	1.3 ± 1.3
BPS 5 mg/kg	6.7 ± 2.0	11.4 ± 2.2	1.7 ± 1.3

Data are presented as the mean number of days in that stage ± SEM.
Litter numbers: Vehicle (n = 9), BPA 0.5 (n = 12), BPA 5 (n = 12), BPA 50 (n = 9), BPAF 0.05 (n = 9), BPAF 0.5 (n = 11), BPAF 5 (n = 11), BPS 0.05 (n = 12), BPS 0.5 (n = 11) and BPS (n = 10).
Statistically significantly different from the control group by Dunnett's test at *$p < 0.05$.