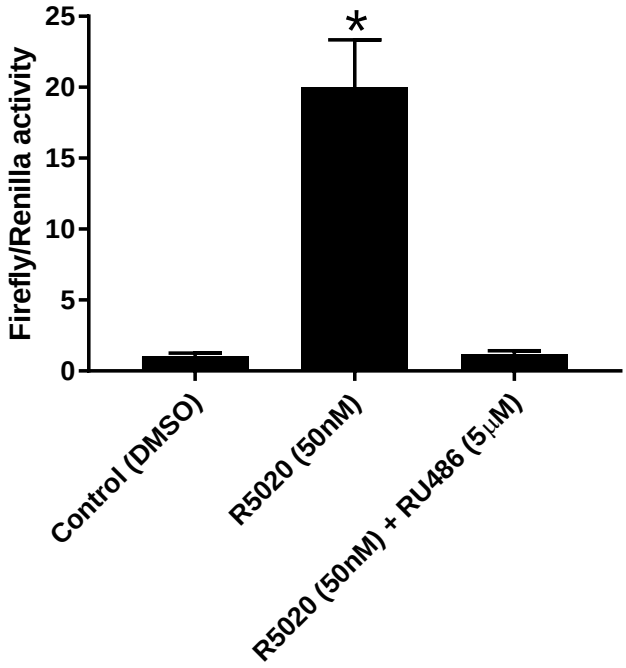
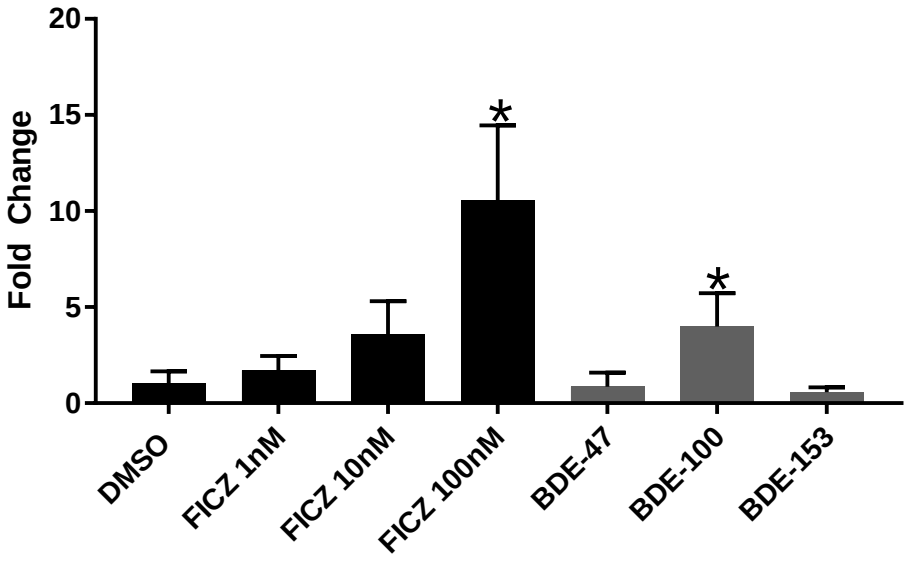
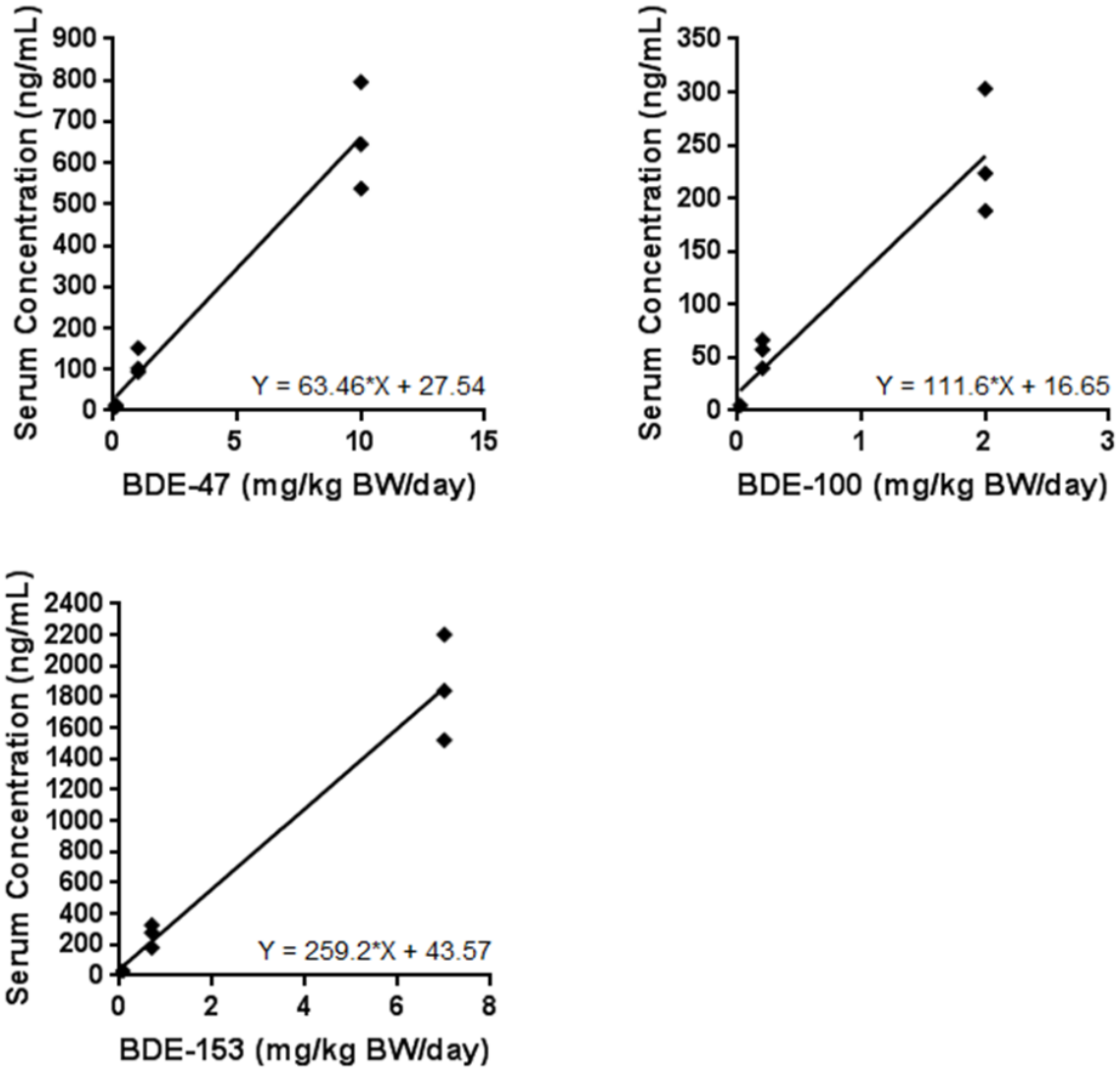
Supplemental Figures and Tables



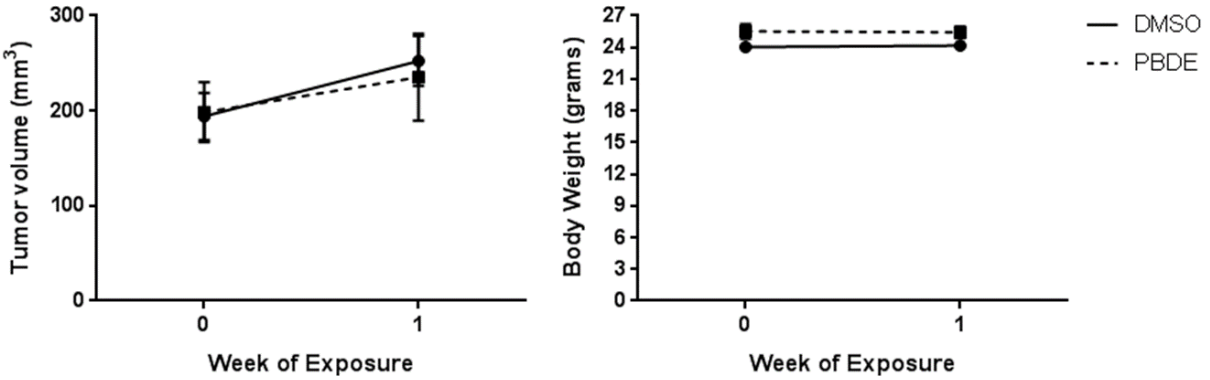
Supplemental Fig. 1. **Validation of the PR reporter assay system**. Prior to the assay, T47D cells were seeded into 96-well plates. On the following day, pGL4.26-(PRE)2 was transfected into the cells. 24 h post-transfection, the cells were treated with PR agonist (R5020) and PR antagonist (RU486). After 24 h of incubation, the luciferase signal was measured. Firefly luciferase activity was normalized to Renilla luciferase signals. Data are expressed as mean ± SD of the mean using triplicate assays. *$P < 0.05$



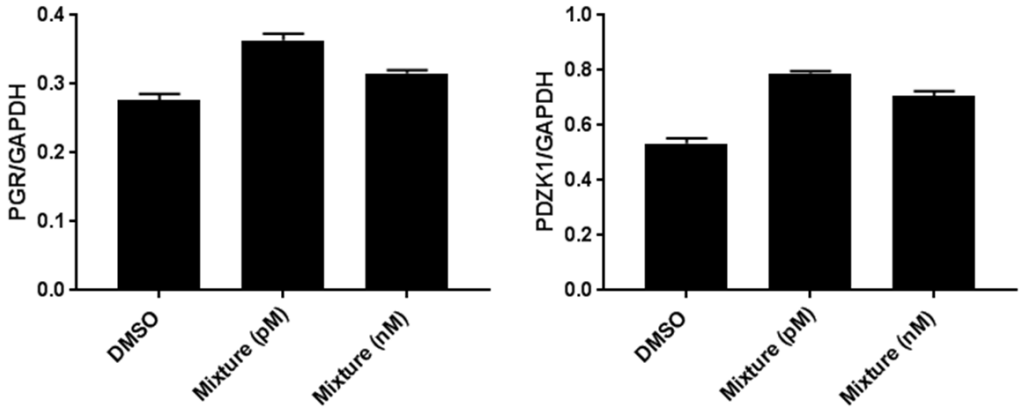
Supplemental Fig. 2. Effects of PBDE (20µM) on CYP1A1 activity. Promega's P450-Glo CYP1A1 Assay System was used with MCF7aroERE cells treated for 24 h with various PBDEs to measure CYP1A1. A detailed protocol of the assay can be found at https://www.promega.com/products/cell-health-assays/adme-assays/p450-glo-cyp1a1-assay-system/?catNum=V8752. Relative luciferase unit (RLU) of cells treated with only 0.2% DMSO is set as the baseline reading. Data is given as fold changes from the baseline RLU. *P < 0.05



Supplemental Fig. 3. The correlation between serum concentrations of PBDEs (ng/mL) and PBDE administration (mg/kg BW/day) in mice. The PBDE-diet was fed to the mice for one week (n=3 per group). At the end of the experiment, blood was drawn to separate serum. Analysis of three PBDE congeners, BDE-47, -100, and -153, was performed on a Thermo Scientific™ DFS™ Magnetic Sector Gas Chromatography High-Resolution Mass Spectrometer.



Supplemental Fig. 4. Tumor volumes and mouse body weights before and after treatments. The mice bearing COH-SC31 tumors were randomized when tumor size was approximately 120 mm^3. Mice (n=3 per group) were exposed to PBDEs through diet for one week. Tumor volumes and mouse body weights were measured and summarized as mean ± SEM.



Supplemental Fig. 5. Low dose exposure experiments. mRNA expression levels of the ER regulated genes were measured using qPCR analysis in the cells treated with mixture of three PBDEs at nM range (BDE-47 (5nM) + BDE-100 (1nM) + BDE-153 (2nM)) and pM range mixture (BDE-47 (100pM) + BDE-100 (20pM) + BDE-153 (40pM)).

Supplemental Table 1. Primer sequences used in the qPCR analysis

Gene	Primer	Sequence (5'-3')
PGR	Forward	TGGAAGGGCAGCACAACTAC
	Reverse	TGTGGGAGAGCAACAGCATC
PDZK1	Forward	GGCTTTCACTTAAATGCGATTC
	Reverse	CTTCTCATAGGGTTCATCTAGCACA
PS2	Forward	CCCTGGTGCTTCTATCCT
	Reverse	AAGCGTGTCTGAGGTGTCC
AURKA	Forward	ATTGGCAAATGCCCTGTCTT
	Reverse	GGCTCCAGAGATCCACCTTC
E2F1	Forward	GACCCTGACCTGCTGCTCTT
	Reverse	CGGGGATTTCACACCTTTTC
CCNB1	Forward	CAGCTCTTGGGGACATTGGT
	Reverse	CTGGCTCAGGTTCTGGCTCT
FOXM1	Forward	GGAGCAGCGACAGGTTAAGG
	Reverse	GCTGTGCAGGGAAAGGTTGT
CYP1A1	Forward	GAGGTGGTTGGCTCTGGAAA
	Reverse	TGGACATTGGCGTTCTCATC
CYP1B1	Forward	CAGTTGTGAGAGCCGCAAGG
	Reverse	ATTGGGATGGGGACGGAGA
ACTIN	Forward	CACCAACTGGGACGACAT
	Reverse	GCACAGCCTGGATAGCAAC
GAPDH	Forward	GAAGGTGAAGGTCGGAGTC
	Reverse	GAAGATGGTGATGGGATTTC

Supplemental Table 2. Purity analysis of PBDEs

	BDE-47	BDE-100	BDE-153
Poly Br-dioxin Compounds			
2,3,7,8-tetrabromodioxin	n.d	n.d	n.d
1,2,3,7,8-pentabromodioxin	n.d	n.d	n.d
1,2,3,4,7,8-hexabromodioxin	n.d	n.d	n.d
1,2,3,6,7,8-hexabromodioxin	n.d	n.d	n.d
1,2,3,4,6,7,8-heptabromodioxin	n.d	n.d	n.d
Poly Br-furan Compounds			
2,3,7,8-tetrabromofuran	n.d	n.d	n.d
2,4,6,8-tetrabromofuran	n.d	n.d	n.d
1,2,3,7,8-pentabromofuran	n.d	n.d	n.d
2,3,4,7,8-penabromofuran	n.d	n.d	n.d
1,2,3,4,7,8-hexabromofuran	n.d	n.d	n.d
1,2,3,4,6,7,8-heptabromofuran	n.d	n.d	n.d

n.d. non-detect

Supplemental Table 3. PBDE dosages for preliminary dosage testing experiments

Diet	BDE-47	BDE-100	BDE-153
		(mg/kg bw/day)	
Vehicle	0	0	0
Low	0.1	0.02	0.07
Medium	1	0.2	0.7
High	10	2	7

Supplemental Table 4. PBDE dosages for ER+ PDX experiments

Diet	BDE-47	BDE-100	BDE-153
		(mg/kg bw/day)	
Vehicle	0	0	0
PBDEs	1	0.056	0.126

Supplemental Table 5. Mouse serum PBDE levels (ng/g lipid)

	BDE-47		BDE-100		BDE-153	
	Mean	±SD	Mean	±SD	Mean	±SD
Vehicle	<MDL		<MDL		<MDL	
PBDE	24336	816	1790	104	9479	133