Supplementary Table 1. Array samples and concentration of chemical treatments used in the study

EXPERIMENT A (Expression Chemogenomics)

Group I Samples (Dataset I)			Group II Samples (Dataset II)		
V2.Control_1			W2.Control_1		
V2.Control_2	Vehicle alone		W2.Control_2		
V2.Control_3	acetone 0.05%	**Control***	W2.Control_3	water	
V2.Control_4	(Merck, Germany)		W2.Control_4	(control)	
V2.Control_5			W2.Control_5		
Es_1			Cd_1		
Es_2	17-beta estradiol		Cd_2	Cadmium chloride	
Es_3	1ug/L (3.67nM)		Cd_3	3mg/L (16.4uM)	
Es_4	(Sigma, USA)	**Combined**	Cd_4	(Sigma, USA)	
Bis_5		**groups of**	Cd_5		Heavy
Bis_1	Bisphenol A	**Estrogenic**	Hg_1		Metals
Bis_2	5mg/L (21.9uM)	**Compounds**	Hg_2	Mercuric chloride	
Bis_3	(Aldrich, USA)	**(ECs)***	Hg_3	0.2mg/L (734nM)	
DES_3			Hg_4	(Aldrich, USA)	
DES_6	Diethylstilbestrol		Hg_5		
DES_2	1ug/L (3.73nM)		NP_1		
DES_8	(Sigma, USA)		NP_2	4-Nitrophenol	
BAP_1			NP_3	5mg/L (35.9uM)	
BAP_2	Benzo[a]pyrene		NP_4	(Merck, Germany)	
BAP_3	~5mg/L (~20.0uM)		NP_5		Organic
BAP_4	(Sigma, USA)	**Combined**	CA_1		Nitrogen
BAP_5		**groups of**	CA_2	4-Chloroaniline	Compounds
MC_1	3-Methyl-	**Polycyclic**	CA_3	20mg/L (157uM)	
MC_2	cholanthrene	**(Halogenated)**	CA_4	(Merck, Germany)	
MC_3	100ug/L (373nM)	**Aromatic**	DEN_1		
MC_4	(Sigma, USA)	**Hydrocarbons**	DEN_2	Diethylnitrosamine	
TCDD_1	2,3,7,8-Tetrachloro-	**P(H)AHs***	DEN_3	400mg/L (3.9mM)	
TCDD_2	dibenzodioxin		DEN_4	(Sigma, USA)	
TCDD_3	10ug/L (31.1nM)		DEN_5		
TCDD_5	(CIL, USA)		Heptachlor_1	Heptachlor	
			Heptachlor_2	100ug/l (268nM)	
			Heptachlor_3	(Supelco, USA)	
			Lindane_1		
			Lindane_2	Lindane	
			Lindane_3	100ug/l (344nM)	
			Lindane_5	(Aldrich, USA)	
			DDT_1		Organochlorine
			DDT_2	DDT	Pesticides
			DDT_3	100ug/l (282nM)	
			DDT_4	(Supelco, USA)	
			DDT_5		
			Atz_1		
			Atz_2	Atrazine	
			Atz_3	5mg/L (23.1uM)	
			Atz_4	(Supelco, USA)	
			Atz_5		

* Experimental groups that were used to obtain descriminatory gene sets for training of prediction models
(dataset I).

EXPERIMENT B (Expression Chemogenomics)

Group III Samples (Dataset III)

V.Control_1 V.Control_10 V.Control_5 V.Control_7 V.Control_8 V.Control_9	Vehicle alone acetone 0.01%	**(Control)***
BAP-H_2 BAP-H_3 BAP-H_4 BAP-H_6 BAP-H_7	BAP-H: ~500ug/L (~2000nM)	**Combined groups of Benzo[a]pyrene (BAP) ***
BAP-L_1 BAP-L_2 BAP-L_3 BAP-L_6 BAP-L_8	BAP-L: ~50ug/L (~200nM)	
DES-H_1 DES-H_4 DES-H_5 DES-H_9	DES-H: 10 ug/L (37.3nM)	**Combined groups of Diethylstilbestrol (DES) ***
DES-L_3 DES-L_4 DES-L_5 DES-L_6 DES-L_7	DES-L: 1 ug/L (3.73nM)	

Group IV (Dataset IV)

BAP-L_As-H_1 BAP-L_As-H_2 BAP-L_As-H_3 BAP-L_As-H_5 BAP-L_As-H_7 BAP-L_As-H_8	BAP-L: ~50ug/L (~200nM) As-H (Arsenic): 40mg/L (~4000nM) (Arsenic purchased from Sigma, USA)
BAP-H_As-H_1 BAP-H_As-H_2 BAP-H_As-H_3 BAP-H_As-H_4 BAP-H_As-H_6 BAP-H_As-H_7 BAP-H_As-H_8	BAP-H: ~500ug/L (~2000nM) As-H (Arsenic): 40mg/L (~4000nM)
BAP-H_DES-H_1 BAP-H_DES-H_4 BAP-H_DES-H_6	BAP-H: ~500ug/L (~2000nM) DES-H: 10 ug/L (37.3nM)
BAP-H_DES-L_1 BAP-H_DES-L_4 BAP-H_DES-L_5 BAP-H_DES-L_6 BAP-H_DES-L_7 BAP-H_DES-L_9	BAP-H: ~500ug/L (~2000nM) DES-L: 1 ug/L (3.73nM)

Group IV Samples (Dataset IV) [continued]

As-H_DES-H_1 As-H_DES-H_10 As-H_DES-H_3 As-H_DES-H_5 As-H_DES-H_6 As-H_DES-H_7 As-H_DES-H_8	As-H (Arsenic): 40mg/L (~4000nM) DES-H: 10 ug/L (37.3nM)
As-L_DES-H_3 As-L_DES-H_4 As-L_DES-H_5 As-L_DES-H_6 As-L_DES-H_7 As-L_DES-H_8	As-L (Arsenic): 4mg/L (~400nM) DES-H: 10 ug/L (37.3nM)
BAP-L_AS-H_DES-H_1 BAP-L_AS-H_DES-H_2 BAP-L_AS-H_DES-H_5 BAP-L_As-H_DES-H_3 BAP-L_As-H_DES-H_6 BAP-L_As-H_DES-H_7 BAP-L_As-H_DES-H_9	BAP-L: ~50ug/L (~200nM) As-H (Arsenic): 40mg/L (~4000nM) DES-H: 10 ug/L (37.3nM)
BAP-L_As-L_DES-H_1 BAP-L_As-L_DES-H_4 BAP-L_As-L_DES-H_5 BAP-L_As-L_DES-H_6 BAP-L_As-L_DES-H_7 BAP-L_As-L_DES-H_8	BAP-L: ~50ug/L (~200nM) As-L (Arsenic): 4mg/L (~400nM) DES-H: 10 ug/L (37.3nM)
BAP-H_As-H_DES-H_2 BAP-H_As-H_DES-H_3 BAP-H_As-H_DES-H_6 BAP-H_As-H_DES-H_8 BAP-H_As-H_DES-H_9	BAP-H: ~500ug/L (~2000nM) As-H (Arsenic): 40mg/L (~4000nM) DES-H: 10 ug/L (37.3nM)
W.Control_1 W.Control_2 W.Control_4 W.Control_5 W.Control_7	water (control)

* Experimental groups that were used to obtain descriminatory gene sets for training of prediction models (dataset III).

Supplementary Table 1 (continued).

EXPERIMENT C (Tissue-Specific Biomarker Validation Experiment)

Tissue-specific Samples (brain, gills, liver, gut, skin, testis and eyes were sampled)

V.Control_1
V.Control_2   Vehicle alone (Control)
V.Control_3   acetone 0.01%
V.Control_4
V.Control_5

BAP_1
BAP_2
BAP_3   BAP: ~250ug/L (~1000nM)
BAP_4
BAP_5

DES_1
DES_2
DES_3   DES: 5 ug/L (18.7nM)
DES_4
DES_5

Except for 17-beta-estradiol and diethylstilbestrol which was selected based on vitellogenin transcript induction, the exposure concentrations for the remaining compounds were selected based on preliminary acute toxicity tests that produced about 10%-20% mortality within 96 hours of treatment. Concentrations for benzo[a]pyrene were reduced 10- to 100-fold for experiment B and C. We reason that these concentrations would produce a spectrum of responses/effects ranging from adaptive to toxicity.