Supplementary Data Table 1: Analysis of mRNA expression levels in the mammary gland of ACI rats

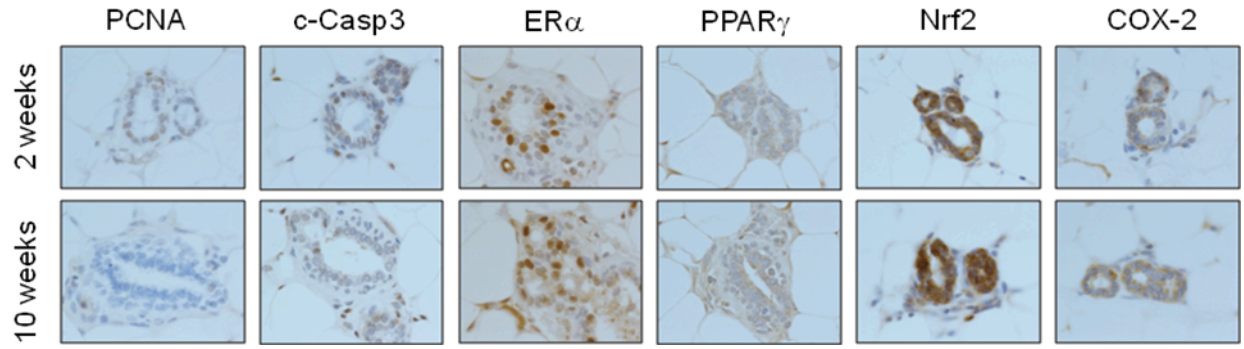
	2 weeks			10 weeks		
	E_2 Control	**E_2 + 0.3% γ-TmT**	**E_2 + 0.5% γ-TmT**	**E_2 Control**	**E_2 + 0.3% γ-TmT**	**E_2 + 0.5% γ-TmT**
Nrf2 Pathway						
Nrf2	1.0 ± 0.4	1.2 ± 0.3	1.2 ± 0.5	1.0 ± 0.1	0.7 ± 0.1	1.0 ± 0.1
Keap1	1.0 ± 0.1	0.8 ± 0.2	0.7 ± 0.2	1.0 ± 0.1	0.8 ± 0.1	0.7 ± 0.1
Phase I Enzymes						
Cyp 1A1	1.0 ± 0.1	1.0 ± 0.3	0.8 ± 0.1	1.0 ± 0.1	0.3 ± 0.2*	0.5 ± 0.2
Cyp 1B1	1.0 ± 0.1	0.9 ± 0.1	1.0 ± 0.3	1.0 ± 0.3	0.8 ± 0.1	0.8 ± 0.4
Phase 2 Enzymes						
UGT1A1	1.0 ± 0.2	1.8 ± 0.1*	1.6 ± 0.3	1.0 ± 0.1	1.8 ± 0.1†	1.6 ± 0.2
NQO1	1.0 ± 0.1	1.2 ± 0.1	1.1 ± 0.2	1.0 ± 0.2	1.1 ± 0.2	1.1 ± 0.1
GSTm1	1.0 ± 0.1	1.9 ± 0.3*	2.4 ± 0.2‡	1.0 ± 0.1	1.3 ± 0.3	1.7 ± 0.4
LOC5O11	1.0 ± 0.2	2.8 ± 0.1‡	2.3 ± 0.3*	1.0 ± 0.1	1.2 ± 0.2	1.4 ± 0.2
COMT	1.0 ± 0.1	1.5 ± 0.1*	1.6 ± 0.1*	1.0 ± 0.2	1.2 ± 0.2	1.6 ± 0.5
GClm	1.0 ± 0.1	0.9 ± 0.2	0.9 ± 0.2	1.0 ± 0.3	1.0 ± 0.5	1.4 ± 0.5
Antioxidant Enzymes						
SOD1	1.0 ± 0.2	1.2 ± 0.1	0.7 ± 0.2	1.0 ± 0.1	1.1 ± 0.3	1.2 ± 0.2
GPX1	1.0 ± 0.2	1.2 ± 0.2	1.7 ± 0.5	1.0 ± 0.1	1.0 ± 0.1	1.5 ± 0.6
HO-1	1.0 ± 0.2	1.2 ± 0.1	1.0 ± 0.2	1.0 ± 0.2	1.2 ± 0.2	1.2 ± 0.3
TXN1	1.0 ± 0.2	1.0 ± 0.1	0.9 ± 0.2	1.0 ± 0.1	0.9 ± 0.2	1.2 ± 0.3
Catalase	1.0 ± 0.2	0.8 ± 0.2	0.7 ± 0.1	1.0 ± 0.1	0.7 ± 0.2	0.7 ± 0.2

ACI rats treated with estrogen pellets were fed the control, 0.3%, or 0.5% γ-TmT diet. A mammary gland from each rat was analyzed for mRNA levels by quantitative PCR (n = 2-6). The values are represented as mean ± S.E.M. Statistical significance, *$p<0.05$, †$p<0.01$, ‡$p<0.001$.

Supplementary Data Table 2: Analysis of mRNA expression levels in the liver of ACI rats

	2 weeks			10 weeks		
	E_2 Control	**E_2 + 0.3% γ-TmT**	**E_2 + 0.5% γ-TmT**	**E_2 Control**	**E_2 + 0.3% γ-TmT**	**E_2 + 0.5% γ-TmT**
Nrf2 Pathway						
Nrf2	1.0 ± 0.1	0.9 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	0.8 ± 0.1
Keap1	1.0 ± 0.1	1.1 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	1.1 ± 0.2	1.0 ± 0.1
Phase I Enzymes						
Cyp 1A1	1.0 ± 0.2	1.4 ± 0.2	1.1 ± 0.2	1.0 ± 0.2	0.5 ± 0.1	1.8 ± 0.7
Cyp 1B1	1.0 ± 0.2	0.7 ± 0.1	1.0 ± 0.2	1.0 ± 0.2	1.0 ± 0.5	3.2 ± 0.5*
Phase 2 Enzymes						
UGT1A1	1.0 ± 0.2	1.4 ± 0.2	1.3 ± 0.1	1.0 ± 0.1	1.8 ± 0.1‡	1.6 ± 0.1‡
NQO1	1.0 ± 0.1	2.8 ± 0.2‡	2.6 ± 0.3‡	1.0 ± 0.1	1.3 ± 0.3	1.5 ± 0.8*
GSTm1	1.0 ± 0.1	2.0 ± 0.2‡	1.8 ± 0.2†	1.0 ± 0.1	1.5 ± 0.2	1.7 ± 0.2
LOC5O11	1.0 ± 0.1	0.9 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	1.1 ± 0.1	1.1 ± 0.1
COMT	1.0 ± 0.1	0.9 ± 0.1	0.9 ± 0.1	1.0 ± 0.1	1.1 ± 0.2	1.2 ± 0.2
GClm	1.0 ± 0.1	2.0 ± 0.3†	2.3 ± 0.2‡	1.0 ± 0.1	1.4 ± 0.2	1.3 ± 0.9
Antioxidant Enzymes						
SOD1	1.0 ± 0.1	0.9 ± 0.1	0.8 ± 0.1	1.0 ± 0.1	1.1 ± 0.1	1.3 ± 0.1
GPX1	1.0 ± 0.2	1.5 ± 0.2	1.3 ± 0.2	1.0 ± 0.1	0.8 ± 0.1	1.2 ± 0.0
HO-1	1.0 ± 0.1	0.9 ± 0.1	1.1 ± 0.2	1.0 ± 0.1	1.2 ± 0.3	1.3 ± 0.0*
TXN1	1.0 ± 0.1	1.2 ± 0.1	1.2 ± 0.1	1.0 ± 0.1	1.1 ± 0.3	1.3 ± 0.0
Catalase	1.0 ± 0.1	1.2 ± 0.1	1.1 ± 0.1	1.0 ± 0.1	1.2 ± 0.3	1.3 ± 0.1

ACI rats treated with estrogen pellets were fed the control, 0.3%, or 0.5% γ-TmT diet. Liver from each rat was analyzed for mRNA levels by quantitative PCR (n=2-6). The values are represented as mean ± S.E.M. Statistical significance, *$p<0.05$, †$p<0.01$, ‡$p<0.001$.



Supplementary Figure 1: ACI rats treated with control pellets were fed the control AIN-93M diet. A representative immunostaining of PCNA, c-Casp3, ERα, PPARγ, Nrf2, and COX-2 in the mammary gland is shown (600x). Positive staining of PCNA, ERα and PPARγ is found in the nuclei of the cells. Positive staining of c-Casp3 is shown as a light brown to dark brown precipitate in the cytoplasm or perinuclei of the cells. Positive staining for Nrf2 is found both in the cytoplasm and nuclei of the cells. Positive staining for COX-2 is found in the cytoplasm.