

Supplemental table 6A. Top Biological Functions affected by both E2 and Tamoxifen: Diseases and disorders

Biological Function	Molecules in Network	p-value	# of molecules
Cancer	ABCC5, AFP, ANXA2, CXCL2, DNAJA1, FOSL1, GCH1, GDF15, HSPA1A, IL1A, INHBA, KIAA1199, MMP10, PLAUR, PPP2R2B, RBM4B, SECTM1, SERPINE1, SFRP2, SLC1A4, TRO	1.89E-05 - 2.77E-02 5.28E-04 -	21
Nutritional Disease	CIDEA, DIO2, GCH1, HSPA1A, NTF4, SERPINE1	2.37E-02	6
Reproductive System Disease	ABCC5, AFP, ANXA2, FOSL1, GDF15, IL1A, INHBA, KIAA1199, PLAUR, SERPINE1, SLC1A4, TRO	5.45E-04 - 2.64E-02	12
Organismal Injury and Abnormalities	ANXA2, IL1A, INHBA, NTF4, PLAUR, SERPINE1	1.44E-03 - 2.56E-02	6
Genetic Disorder	ABCC5, ANO10, APOC2, ASB13, CIDEA, GCH1, GDF15, IL1A, ITPR2, KIAA1199, NTF4, SERPINE1, SLC1A4, SLC25A4, TTC9	2.44E-03 - 2.66E-02	15

Supplemental table 6B. Top Biological Functions affected by both E2 and Tamoxifen: Molecular and Cellular functions

Biological Function	Molecules in Network	p-value	# of molecules
Cell Morphology	ANXA2, CXCL2, FOSL1, FZD6, GDF15, HSPA1A, IL1A, INHBA, NTF4, PIGA, PLAUR, SERPINE1	5.16E-05 - 3.13E-02	12
Cell-To-Cell Signaling and Interaction	ANXA2, CXCL2, HSPA1A, IL1A, INHBA, NTF4, PLAUR, SERPINE1	6.94E-05 - 2.92E-02	8
Cell Death	ABCC5, AFP, CIDEA, CXCL2, DNAJA1, DNAJB1, FOSL1, GDF15, HSPA1A, IL1A, INHBA, IP6K2, ITPR2, MMP10, NTF4, PIGA, PLAUR, PPP2R2B, RBM4B, SERPINE1, SFRP2, SLC25A4, SRXN1	1.06E-04 - 2.92E-02	23
Cellular Movement	ANXA2, CXCL2, DNAJA1, FOSL1, GDF15, IL1A, INHBA, MMP10, NTF4, PLAUR, SERPINE1, SFRP2	2.78E-04 - 3.06E-02	12
Drug Metabolism	ABCC5, AFP, ANXA2, DIO2, DNAJA1, DNAJB1, GCH1, IL1A, INHBA	2.78E-04 - 2.92E-02	9

Supplemental table 6C. Top Biological Functions affected by both E2 and Tamoxifen: Physiological System and Development and Function

Biological Function	Molecules in Network	p-value	# of molecules
Tumor Morphology	GDF15, IL1A, PLAUR, SERPINE1, SFRP2	2.62E-06 - 2.56E-02	5
Hair and Skin Development and Function	ABCC5, ANXA2, CXCL2, FOSL1, HSPA1A, IL1A, INHBA, NTF4, PLAUR, SERPINE1	5.16E-05 - 2.83E-02 6.94E-05 -	10
Embryonic Development	ABCC5, ANXA2, IL1A, INHBA, PIGA, PLAUR, SERPINE1, SFRP2	1.84E-02	8
Endocrine System		3.70E-04 -	
Development and Function	AFP, DIO2, DNAJA1, DNAJB1, IL1A, INHBA	2.92E-02	6
Nervous System		4.23E-04 -	
Development and Function	CXCL2, DIO2, GDF15, IL1A, INHBA, NTF4, PLAUR	2.92E-02	7

Supplemental table 6D. Top Canonical Pathways affected by both E2 and Tamoxifen

Canonical Pathway	p-value
Aldosterone Signaling in Epithelial Cells	1.48E-03
Coagulation System	6.19E-03
Wnt/b-catenin Signaling	2.12E-02
Dopamine Receptor Signaling	2.47E-02
LXR/RXR Activation	2.76E-02