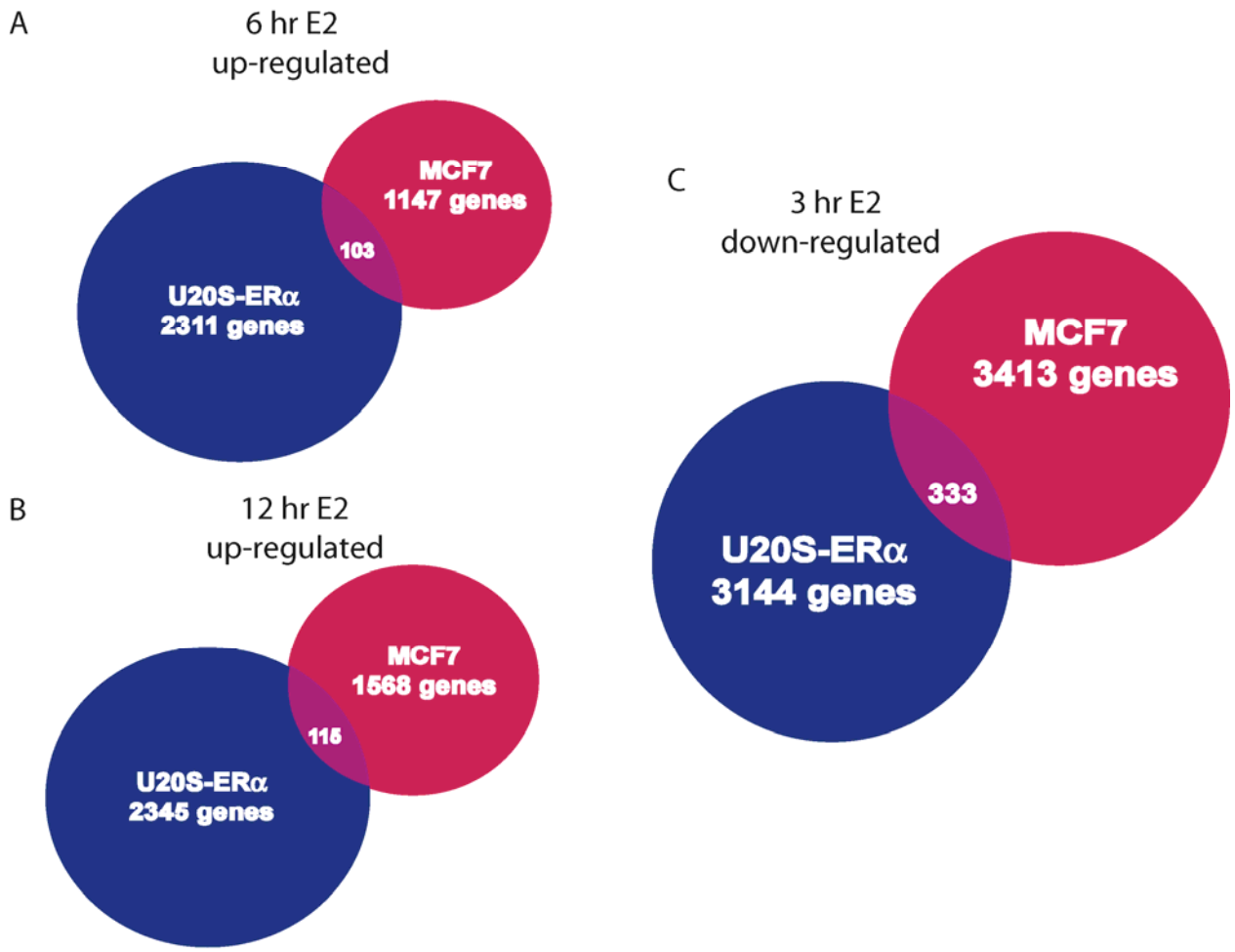
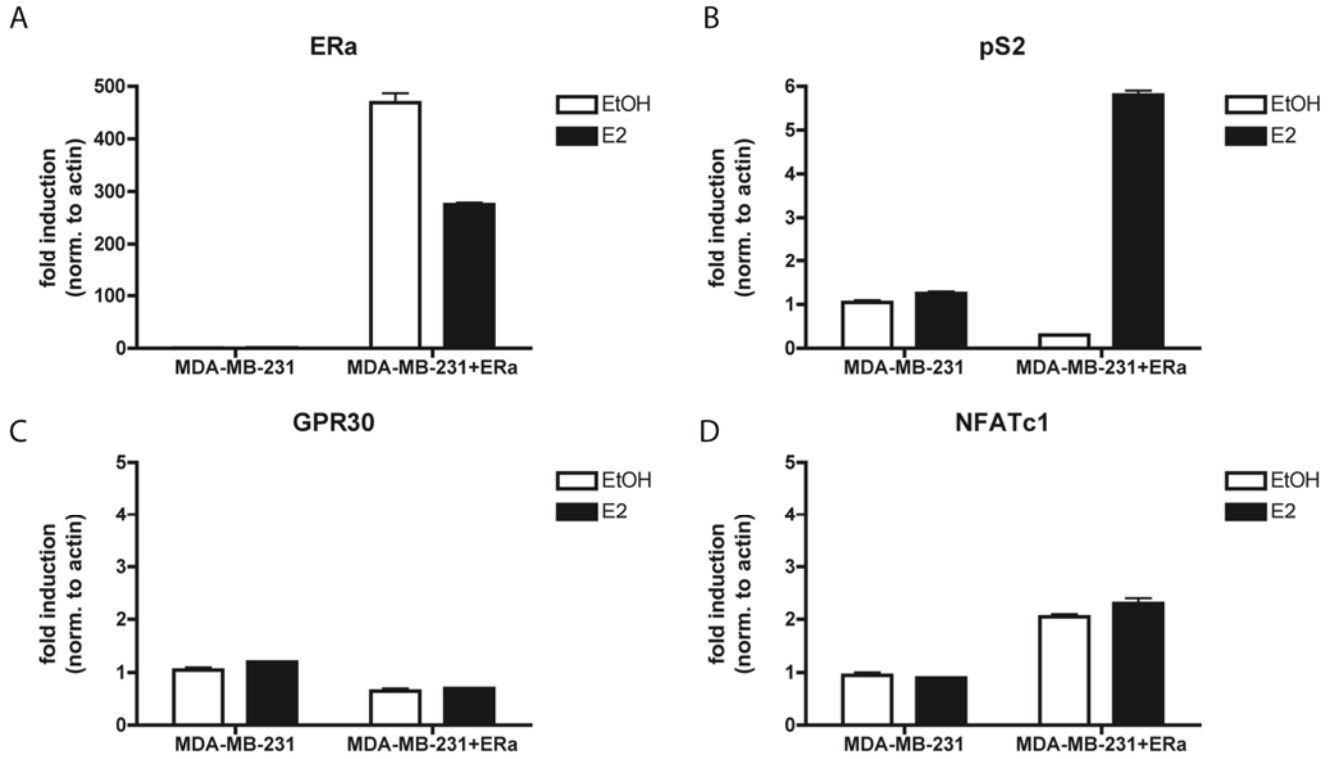
Supplemental 1



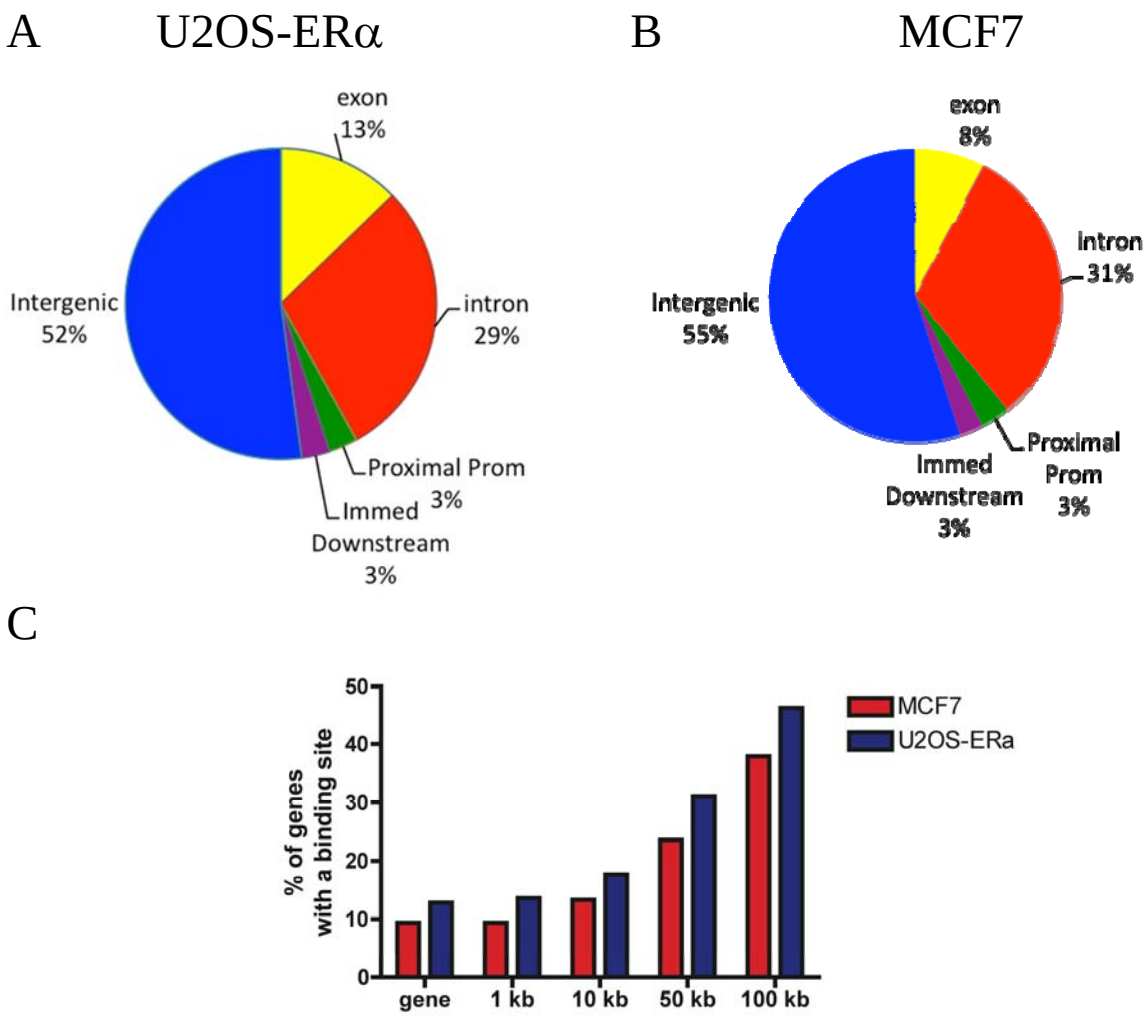
Venn diagrams showing the number of genes up-regulated by 10 nM E2 for A, 6 hours, or B, 12 hours or C, down-regulated by E2 at 3 hours in MCF7 and U2OS-ERα cells.

Supplemental 2



Over-expression of ERα does not regulate osteoblast-specific genes in MDA-MB-231 cells. MDA-MB-231 or MDA-MB-231 cells stably transfected with ERα were treated for 3 hours with vehicle (EtOH) or 10 nM E2. RNA was obtained and quantitative PCR was performed with primers for A. ERα, B. pS2, C. GPR30 and D. NFATc1.

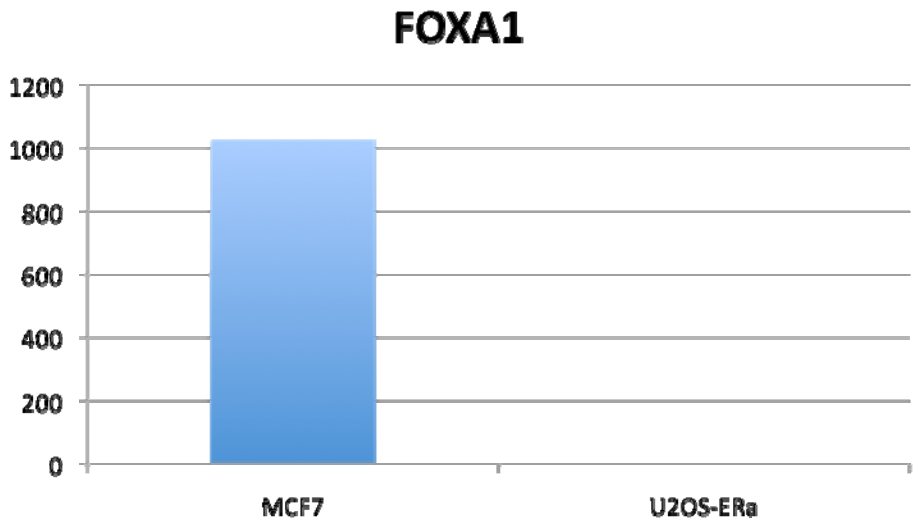
Supplemental 3



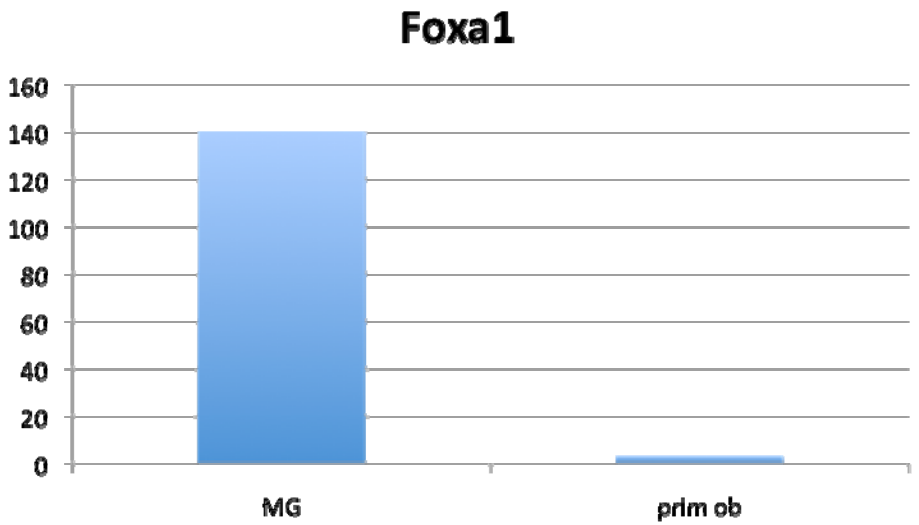
Supplemental 2: Location of ERa binding sites. A and B: Location of ERα binding sites in MCF7 and U2OS-ERα cells. Location analysis of binding sites was performed using CEAS (47). C: Up-regulated genes in U2OS-ERa cells or MCF7 cells were analyzed for the presence of binding sites within the gene or within the gene plus the indicted distance upstream and downstream of the gene.

Supplemental 4

A

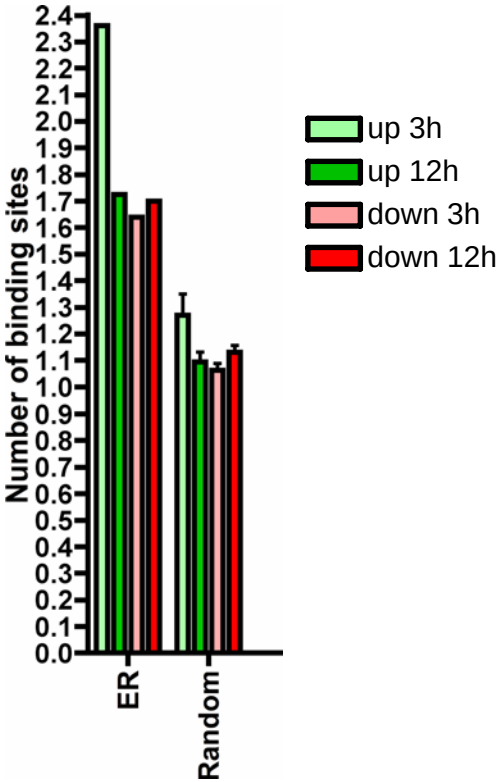


B



A. The basal levels of FOXA1 mRNA in MCF7 and U2OS-ERα cells as determined by qPCR. B. The basal levels of Foxa1 mRNA in mouse mammary gland (MG) and primary osteoblasts (prim ob) as determined by qPCR.

Supplemental 5



Genes regulated by E2 at 3 hours have a higher number of ERα binding sites. Each of the genes up- or down-regulated at 3 or 12 hours by E2 in MCF7 cells was analyzed for the number of ERα binding sites in the gene and 30 kb upstream of the gene. A randomly generated set of binding sites was also compared to the regulated genes in MCF7 cells.

Supp. Table 1

Human mRNA primers

SEQUENCE	FORWARD PRIMER 5' TO 3'	REVERSE PRIMER 5' TO 3'
B-ACTIN	GGACTTCGAGCAAGAGATGG	AGCACTGTGTTGGCGTACAG
GPR30	GCAATTGCACTCATGTGGAC	TTCCGCACATGACAGGTTTA
FASL	GGCCCATTTAACAGGCAAGTC	GGCCACCCTTCTTATACTTCAC
XBP1	GCGCCTCACGCACCT	GCTGCTACTCTGTTTTTCAGTTTCC
CTSD	GACCTGCCTCTCCACTTTGA	CACTGCAAACTGCTGGACAT
C-FOS	AGAATCCGAAGGGAAAGGAA	CTTCTCCTTCAGCAGGTTGG
NFATC1	AGAAAGCGAAGCCAGTACCA	CGGTCTCACTAACGGGACAT
CDH26	CAAACAGGGACTTTCCCAGA	AGTGTTTGGTGGCCTTCATC
NR5A2	CAGTGCTCCCCACTGAAAAT	GCCAGGTTACAAATCGGCTA
SOX5	CAGCAGCTGGTGAGATTTGA	AGTCACTTGGGAGGATGTGG
MYB	TACCCAACTGTTCACGCAGA	CTTTCCACAGGATGCAGGTT
NRIP	TCGCACTCACCACAGAAAAC	AGCCAAGCTCTTCTCCATGT
PAX7	CACTGTGACCGAAGCACTGT	GTCAGGTTCCGACTCCACAT
MYT1L	CCCCCATTGTTCATAACAGC	CCAACGTTAGATGAGCAGCA
ALKALINE PHOS.	CCACGTCTTCACATTTGGTG	AGACTGCGCCTGGTAGTTGT
FOXO1	AAGAGCGTGCCCTACTTCAA	TTCCTTCATTCTGCACACGA
FOXO4	ACGAGTGGATGGTCCGTACT	GCCTCGTTGTGAACCTTGAT

Supp. Table 2

Mouse mRNA primers

SEQUENCE	FORWARD PRIMER 5' TO 3'	REVERSE PRIMER 5' TO 3'
C-FOS	CCGACTCCTTCTCCAGCAT	TCACCGTGGGGATAAAGTTG
XBP1	TCAAATGTCCTTCCCCAGAG	GGTCCCCACTGACAGAGAAA
NRIP	ACGACTTCCAGACCCACAAC	CTCAGCAAGCGACTCAACAG
PAX7	GATCACCCTCATCCAGTGCT	GGTGTCTTGTCGGTTCAGGT
MYT1L	GGTGTGCAATCCTGTGTCAG	GTGCCGCTGGGATATTCTTA
ALKALINE PHOS.	GACGCAGAGTCCCTTCAGAC	CACCCCTACTCCCCATACCT
FOXO1	GGGTCTGTCTCCCTTTCCTC	CAACTGCCCATGATTCACAC
SOX5	AACAAGCACAGATCCCCATC	TGTCCTCAGCCTGGATCTCT
FOXO4	CAAGAAGAAGCCGTCTGTCC	CTGACGGTGCTAGCATTTGA
B-ACTIN	AGCCATGTACGTAGCCATCC	CTCTCAGCTGTGGTGGTGAA

Supp. Table 3

Human ChIP primers

SEQUENCE	FORWARD PRIMER 5' TO 3'	REVERSE PRIMER 5' TO 3'
XBP1 PROMOTER	CATAGCCACGGTCCTGAAAC	CCACCACCATAGCTCCAGAC
XBP1 ENH1	ATACTTGGCAGCCTGTGACC	GGTCCACAAAGCAGGAAAAA
XBP1 ENH2	TTGCTGTGCAAACAATAGCC	GTCCAAGGGCACATTCTCAT
XBP1 ENH3	AGGACTCCTTTGCGGGTAAT	GTGAAAAATTCGGTGGCATT
PAX7 PROMOTER	AGCAAGGAGCTCAGAGTTGG	CAGGTTTCTTCCTCCCCTTC
PAX7 ENHANCER	CAAAACGATCACTGCTCGAA	ATGGGAGGAAGACCCTGAGT
FASL PROMOTER	TCCTGTAGCTGGGAGCAGTT	AGAGCAAACCCCTGGAAGTT
FASL ENHANCER 1	CCACCAGGACCAGAATGTTT	GGTTCCAGCTGACCAAATGT
FASL ENHANCER 2	GGCCTCCCAAAGGTATTAGC	GTTGCTCAATGGCCAAGAAT
ALPL 1	GTGTGATCATTGCCCCTCTT	GCTGAGCTTTGTCTGGGAAC
ALPL 2	CACTGGGAGCCTAAGCAGAC	CCTGAGGTCAGGGTTGTTGT
ALPL 3	TCAACCTGTTTGTGGATGGA	GACTCTCCCTAGGCCACACA
B-ACTIN	CAGTGCCTAGGTCACCCACT	AGAAGTCGCAGGACCACACT
HBB	TGGTATGGGGCCAAGAGATA	TAGATGGCTCTGCCCTGACT