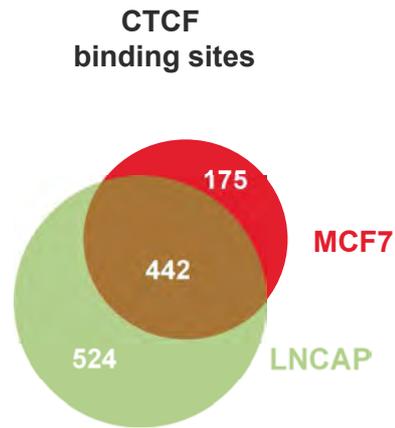
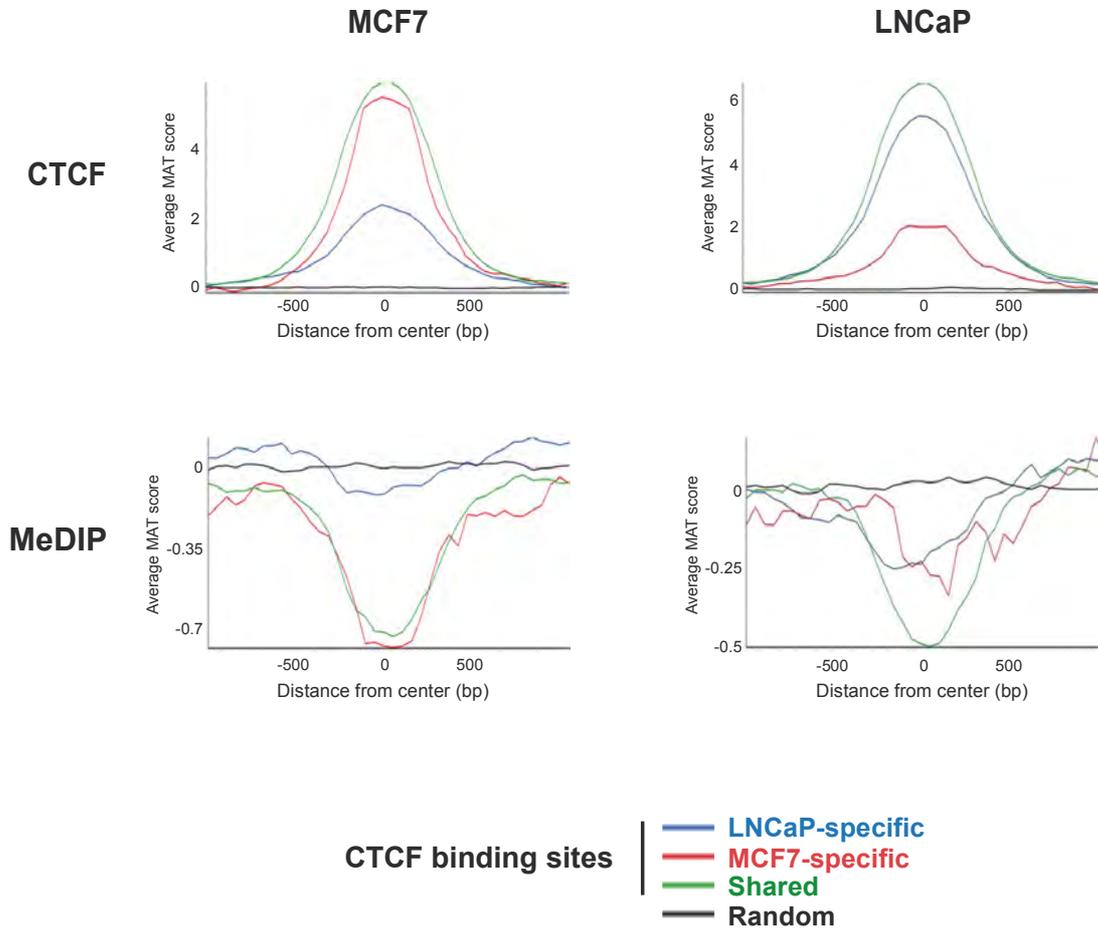


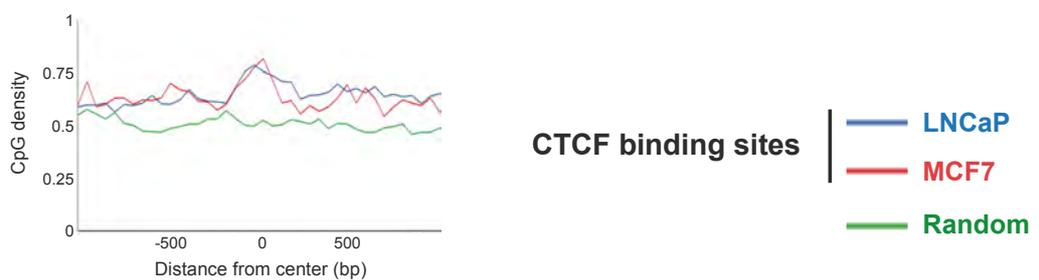
A



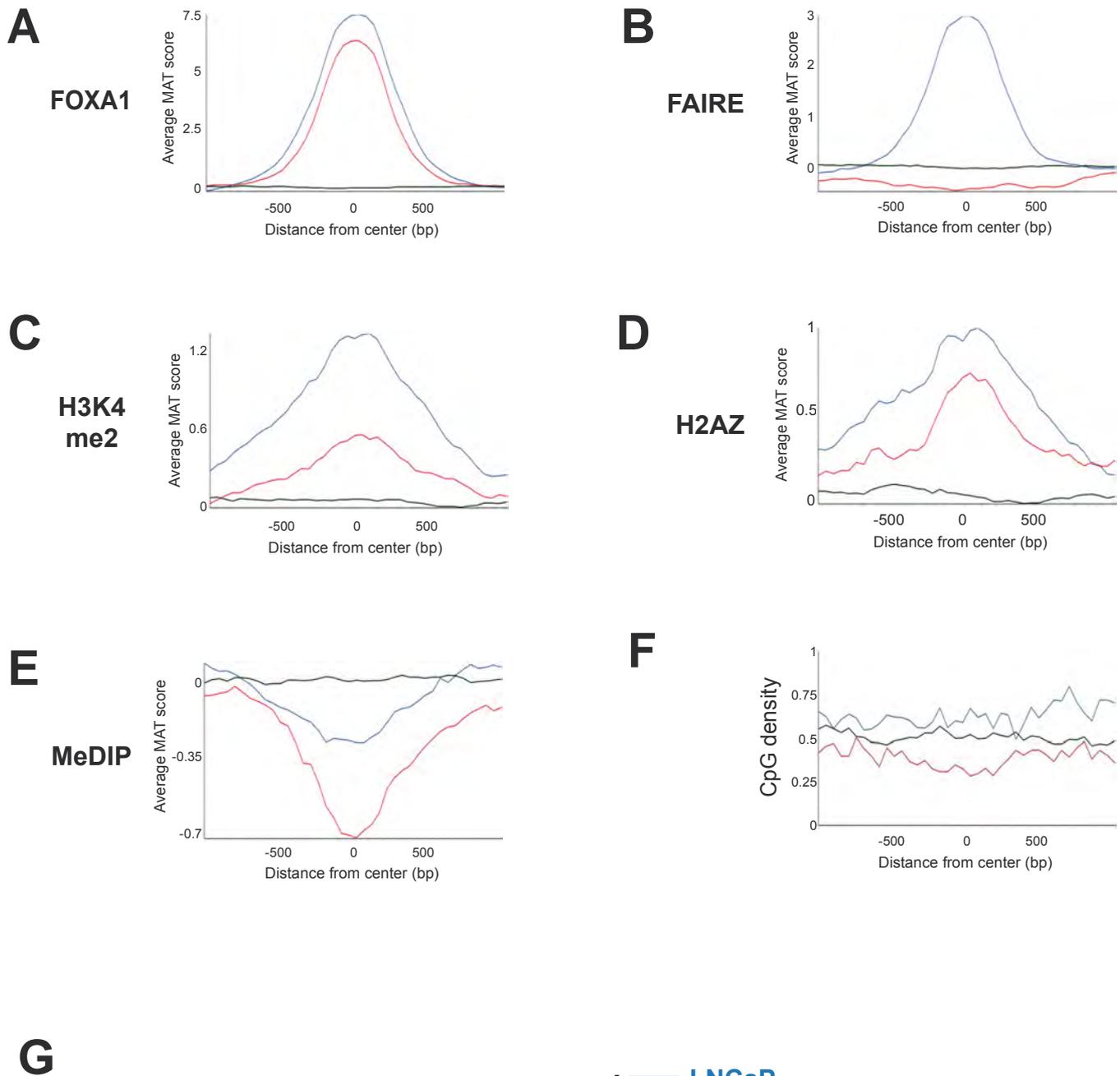
B



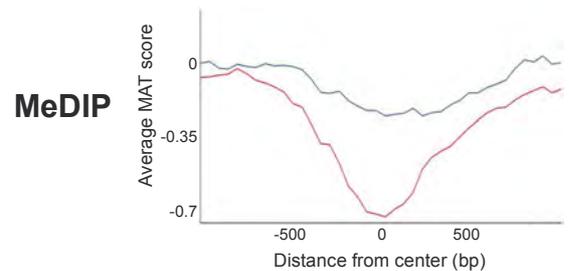
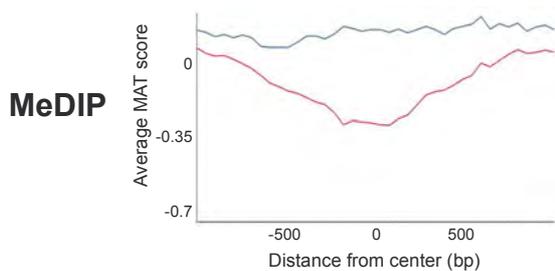
C



FOXA1-bound enhancers [ — Active  
— Inactive  
— Random



**G** Average MAT score | — LNCaP  
— MCF7

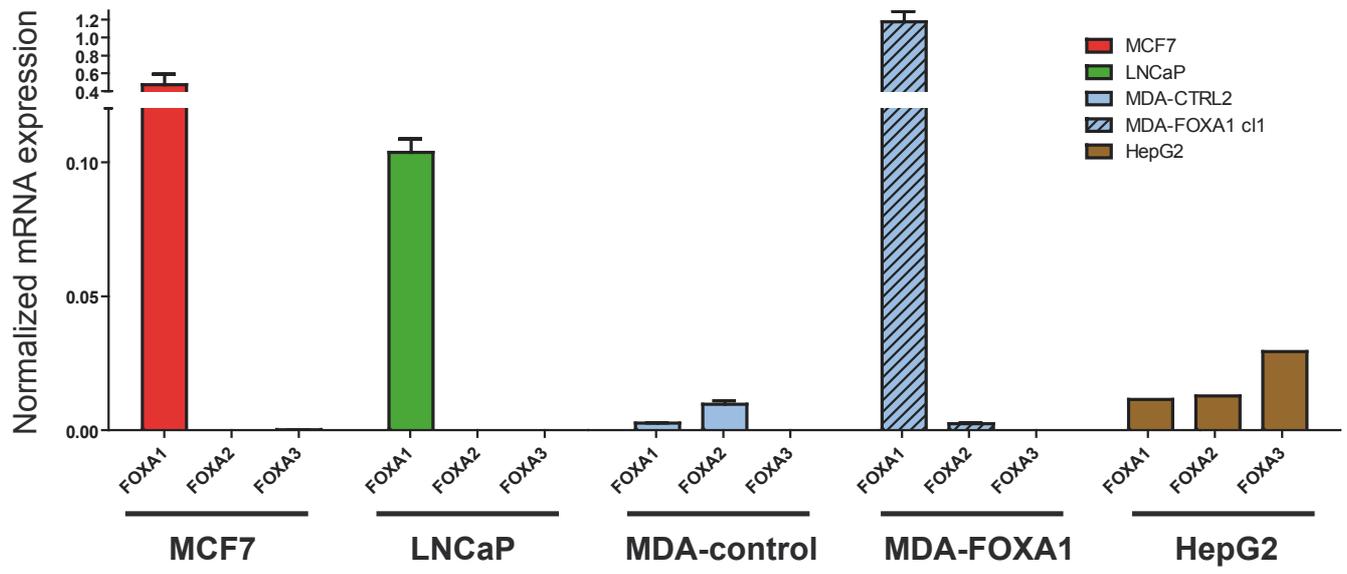


Active

FOXA1-bound  
enhancers

Inactive

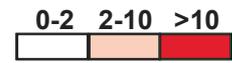
MCF7-specific

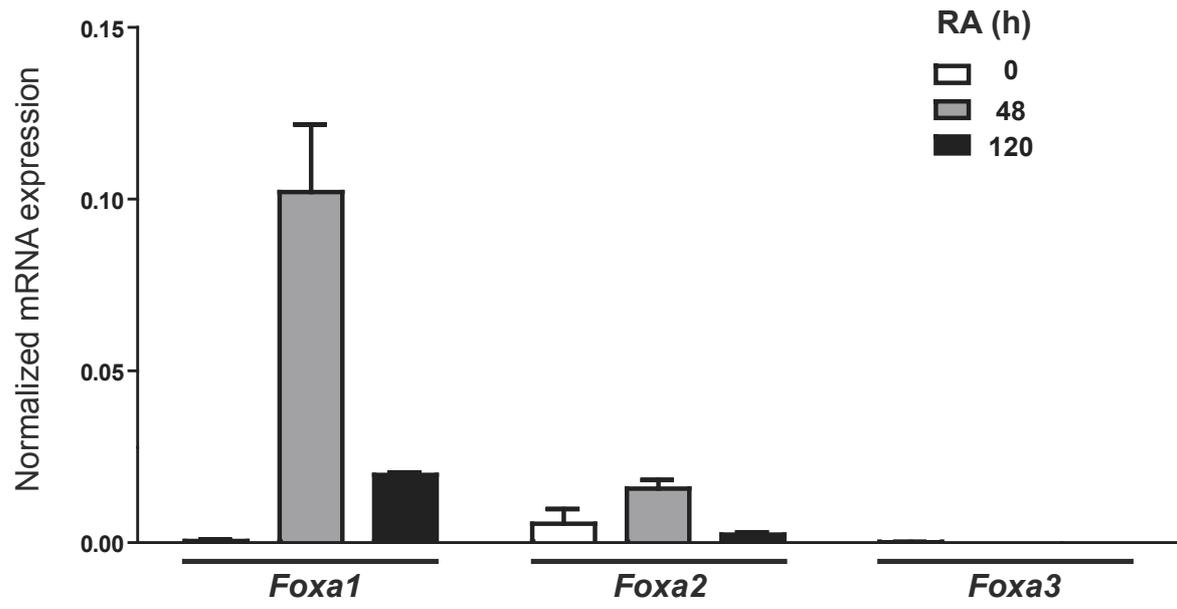


Closest genes to  
FOXA1 binding sites



Fold mRNA repression





A

FOXA1 matrix



FOXA1 binding sites

B

t t t ccagagtgcagtatctcctcctgtctcCGccaat gat atagt caagaatgctgt tgtat t gcaacatcaactacaacCGtaagctct  
agaaaact aatccaaaactct ctgtgcatctcagct aacat t t tcc tgt tat taccatgct gat gcat taacagatgat cagat aatgctc  
aCG[#2]t acat atgtat caaagtctgtctcatctcct aagcaagcat gtct gcaccatgctccat tagt ctggctctctgtaacatctgct ag  
CG[#1]t gct gaat ggtgcaacctat gacagt tccactggctgtctgcat cacagtggt aactccctggctcagtcacat cctgaagccagga  
gccaacaaaactgtc

3

MCF7-  
specific

ctgagtgtctagaatggtgcCGggcacacagtaggtgCGcagt aaaaacat gct act gaact gagagagt cct ct cct ccat ccccat caggct  
gagct ct agt aaacact caggagcct ccaggccctgtat aaaggcct gacaagcct CG[#1]ccctgctgCG[#2]gaat t acagatggg  
gctgt tct tgt gtgtcaacagagt gct aat ct ctgct cat aat gccaggcaggaaggagcctgct t gct gaggaact ctgtct caaagc CG  
[#3]ccaggtaacatgagtggggctctgggg CG[#4]ggagcagcatgtctcccatcctggcct gat aatgtccaggggcccct ccagcct  
cCGccaggcagctgctctgaccacagcctcctcCG

5

gtgaCG[#6]ggcagcatctaatgcaccagcagcctccagcactagtaccaacacct agaaagtgct cat gct ta CG[#5]agaaaagg  
atgtgcCG[#4]gtgagaccCG[#3]atagctgcaCG[#2]tctcacagcCG[#1]cccatgtacct tacaat tcat gt agaggaaagt  
caat agagtgcactct ccaatcaggcct ct aaagacaagCGgtcaggctgagctctcaccaat tagct aCGgtt ctctcaagtcaacct  
gcaagaacagggaggtgt aaacatgocctgtggacagctgtggtcagcacagaact ggacagagaagaaagCGctgtgcaggcaggaaaactg  
gcacaaaatctgtgcagacatgcctgcCGactCGccact tccagagt aac

8

LNCaP-  
specific

cact aagcagcccctgctgocctccCGggtgggtctcCGcagtgtgcacCGtaagggccagtctgocctgtacatcccagcccagccacaCGcca  
tgccaggt acacagcaggtgocctggaagaggagCG[#1]tctaaagataacacaacaagataacaaggaggaCG[#2]cCG[#3]cctg  
cctaaCG[#4]tgt aat aacagccCG[#5]t cctgcataact CG[#6]tgtggagct ggccaactgt tctcat CG[#7]agactggcttg  
t tat acacoCG[#8]ct ct gtatCG[#9]aaactggcacagaaaaacaaaaagagagagaaaaacaagtcaat act ct cagagt gt cag  
agggaaaaCGggcct t cct ggctatgtcacagaagaCGgggaaccccacagcaact cc

10

C

tacctacactatcct aaaacatgcaggcaactggccagggcccagcCG[#1]caggcacacccaaagaaggocacatccaaaccaaacca  
atcaccatgactcat catct agtgt tat caagct ct aagtaagagaaagggtgacaggcaat aaagat t CG[#2]cagaaaaccaa  
agcaagactggcccagtgocctctgagtaggaacaggt aagt at gat gcat acagctggctctgggaagtctgocatgatggaaaaagcaagta  
t ggaatccaaggagaat acatgcagctaaacaaccagcCG[#3]tagtaacctgtatcctgagat t cctgaacagcccctat tcaaatat  
cctgtgctactgtgagatcacatcaaaactatgtg

UBE2C  
enhancer1

tccaactagcataaagataagaacctggctgagcccaaggtaagtat caaat act t at agcagt gactggggcCG[#1]agaagagggg  
ggccaat caat act cct cagggatgaggagt aagagacaCG[#2]ggacagt at gaaaaagtgtat taccat acaggataact tcatat t  
acaaaatgaagggggaaaccccaggt t ct aat acaaat cacat actgt aaaggt cc acaaacct ct ct cagctggggatct aCG[#3]cag  
aacacatgagggcatctgctctgggggtaacaggggaaggaaagaaaacagtgagggt t t t gt t t agcataggt t gct t at t  
cct t at tat t t t gt agagacaaggtc

UBE2C  
enhancer2

FOXA1 binding sites (P19 cells)

D

ttctgcatctgaagttaacactcttccctttattcttttcttccaggccttttagtggttgcttaatcagaatatt  
ttaatctotaatgtggtgactagatgtaattttatcacattaagcctctcctattttcttctgcttacatgactaa  
CG[#2]ttattgtgtttttattgCG[#1]cttatacaaacaagcctttcctttgttccattgttttcagcaatagg  
tcaaaaatcaacaaataaagctttatctttccaatectggactcaccacttgtcattcagtttggttaggctgc  
atgaagagcaggtttctttgaaaacaacaaaggattgatttctatggcctaaaaccaaacagttgcctctctgg  
aaaaggcttggctaCGcctttgttagaggt

1

acctcttgtaacctgccttaggaggagaaagcctgtgtacacaaatcttaaaacacttactttgtttgctttaat  
taatttgaccataatgatttgtgttgggtgcttttctcctatctttgggattaacaaaacaaacactagggttat  
ataggaagaacagagatagggctgctaccaagtcttggagtttaataaaaaaaaaaaaaatgaagctagaatttggg  
caaaagctattttgaactatggaggcctacaaaattgtataacaCG[#1]tagtattggtataattgcttatcttg  
tgggaaaaaatatgtgtgcagagtttatctgggatctgggaagaactgagttaggtaacagaagaacaaactg  
gtggaggagaggCG[#2]agtctgat

2

acacttttcacataagaaagcaccttcactgtacagtttgcacaaaacaattttcatattttcttctcccaa  
acaattttcctaaccactttaatagcttctcagacctggagatagtgctggctatgttagaggcaagtaactgctt  
ttcagctgagtaaacaaagacagacaatgagggtaatgtggcaaacaggcctgccactcagatatttttccaaag  
taggaattcatgctgggctccctcagtCG[#1]gaaagctctggagaataaacattccagatatataactgagct  
aatatcaaagccatactCG[#2]atcagcactacactcttattaatggacagtatgaaacatggtggcaggtaa  
ttatgagatccaagggtttgaaaattcaacagaataaaaaggtaggc

3

tgctggtgcaaattcaagCG[#3]tgaagccaatttttatgctctagatggcaaaaaatgcaggcaattctgaag  
ggtttctcctctccctggcagctggtatggtttacacagtggggatgaaagggcCG[#2]acatctgtggtta  
cattgctacattgcagggtcccccaaccacagttaggactcatttatatccaagcacctctgccccagcatta  
caacagcagagctttcaacttctcctcctCG[#1]aaggettgatctccttgtgcagaacagctcttgatgag  
ttgtgattggaggaggactgggagattttattcttacacagccttggcttctctctcttctctggagccataaag  
gaacatgaccagacctttgcttatagaacaagct

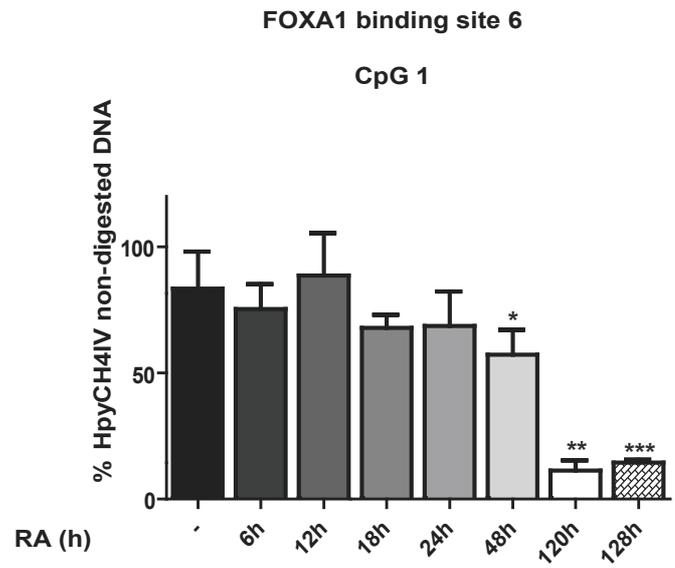
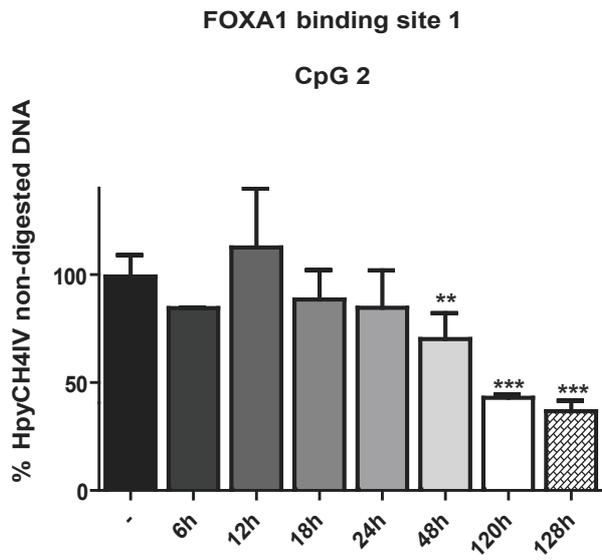
5

tcagttttgttctctgtccaaatgaggaaaatatacataagaacagattCG[#5]tagtctagaagttactgaag  
tCG[#4]tgaaaataatttctaagaccagagtcaacctgactggtttatagttgtagaagctCG[#3]agtaaac  
acattgctttttattacagtcccatCG[#2]atcacttacatatacattaactaaatcaactaaataaaCG[#1]tg  
agtcaaaactgataggtgatttcaggtcagctctaattccaaggtcaagcaagcctttgaacagctctctcagaat  
atgaaactaccccaattcatcaaagCGgtctcacaactCGttctctcctcctggtttttacaatgcattaaagtt  
taggagattatgtgtCGtcagcttcaaaaccttttaacatgct

6

gtactgtggtgtgtcatgggtgcCG[#2]tcataaatctggtcatattttacaggatcttaggaaaaacaattgg  
catgaccttctcctaacctgaggagtcaagtgatggtaaggctggtttgttttgggtgattggctgaaccatc  
agcatccagattattttaaaagttgcacagctaaagtgtgtctcctggggggcaggttgagtgggttgggacatg  
tcaaggtggcctcttgagatgtaatgaaaagccacagtggtgtgaagggacatacaagaataatgcatagtttt  
aaccttatccccctcagagcctttcctgtaccaCG[#1]agaggtgttttgttttcattaatgagctcacagttg  
gtaaagatctgggtggaggtgggcccag

7



**A MCF7-specific FOXA1 binding sites**

caagcttgcaagaaggatTTTTataccacatgtatccttccaatatgatggttaacaagaatgggagaccctatff  
 cccttgggtataaccattgacttagctgctatctgagaataataatgtctgcattgcctcctcctgtcttcaataaatatftaa  
 gttgctgctatacctcataggattattgtgaacaatcaagagagagaccccaaaaagtagtatgaagtagtccatt  
 atcataaaaacaaggcttTgaaaggacagatagggataatgatcccaaacatagttgaggacactttcttctt  
 aatgaacttattactctcattccttTgggttccctaaaggaagataaacctcagtagctTgtttcccgacccttcccttattTg  
 tccctTggataggaaaaacctgttctgaattactcaaatatgcctagaactcaaaagcatgctTgtgattatgccctt  
 tacacatttaagtggaaaaacctcactaacaagaaaataggctgctTggagataataagctcccttccctctgtg  
 gtctcagtagatccaCGTgttctccctcactcctTgaggtgccCGccccctgcagctgccagcCGccctggTgg  
 gcagctctccaccctgaaatgcaccaaccctgaaatgcaaacctctgggtTgtTgacattttctcaacaagg  
 aggaatgtAagtaaatcaaggcaaacagaagtgactcaatctgcTctaacagctttctattttatgactTggaatac  
 acaagatagacaccagagatgaagcactgc

1

Tgaaaaagcttgcaagcactcttagatctacctcagataaagaatcaagaatataaaaacactgctccttatac  
 tttTgggtTgtccatattagttTgttccagaagcctggttaagtacatactgtataaatagctgttagctatgaagtaaat  
 gatTTTTCGttggataaatgcaaatTccagtcagTgttacctgtTggacagctgcactTgagaggtatgactcactact  
 ctctTggccactccatgtgagcactaaaattagatgaagaattattatgtTtTgccagtgactctTggattaagatgt  
 gataacagatctTtTggagTcaagggTacctgtgctaattttatataagaagTttctcattTctagcaagTtagattTtcc  
 actTggataacaatgaatgtgctgtaccactagccCGaggtgaggaaaactctgaactacaaaaaacatgatccc  
 caagctctgctTgcagTctcctTacctgtTtctcTcatcagTaacagTtctgcaagggccattTtactatctaaTtagaa  
 acctataagcactTgacattTgtTctgctgagaaatgcactgagactaatTcaccaggtaggaataatctgTgcac  
 ctattTtgggc

2

agctgggaccatgcaattaggaaaagagggTgtgggaatctccaggccccctggcagggggccaggacaaca  
 gacaactgattagcactgaggtctgtgagTgagacctaagctgctctgtTaccacccagggggctgagagccaa  
 TggggctgggctgtatCGagcagaggtgggagaggagcagTCGaccaagaggcagggTgggatggggTg  
 gggggcaccacaggtgctgccccctcTcCGTgctgcatgtaggaggtgcaggtcacctTgccccctgcCGc  
 agcagaacaattaggaaatggatgcagTtaatccctaagacaaacagggctTgagaaactgcaactcaactgg  
 agagaagagagctgtagggtactcctcagccCGactcttatCGctccccatctctcTcCGgcacccagctctt  
 TcCGgctgggtggctgcacctccaagagggagaggaggaggaagCGaggggaccaatacacTgggaggaa  
 gtgacctgaccagacctTgtctctaaactCGgctggacagaggcagcccagcagccccctagcatccatctg  
 gctTggggagTggTgccccagggcttatgagTgagctggaacccatgtctTggaatccCGagTggctgtgactg  
 ctgactgatgccccctccccacagTtctggagagTggctcagc

4

aaagcaattgtcccacatccaaattTgcattTgtccagTtgatgtctctccttcccccaaaaaaaaaaaaaaaaa  
 aaaaagacaaaataaaaacaCGaagagctgcatctTgatcatcatggacagatactTtTcagTtaaaaagTtTgct  
 ggtagTctgagTtTcactTactTggagTatggactaaggaggggaaagcaaaagagatgCGacatcagcagcaga  
 aagcctgCGacaCGgcagctctgctcagTttTctCGTggggaaagatCGgaacactTcaaatgagaaCGg  
 gactTtaagtagatagTatgcaatggaaaactgagcCGgcaacagTactTaatgctggTttTctcaataaaatcattT  
 gctgtgTaaaCGCGcttataatggggatctgtTatgagTctcaggcagCGacatgaaagcCGgcctTtcaaaa  
 TctgattaggtggataatgtTgcaaacatgaCGcctggcaaacCGgtctgattTctaaagTaaactcattTggac  
 ataactgatgtctcactgagacagctTtTcaagcatgtctgcaaacacCGgaccccCGgggaCGgtgCGtg  
 CGTgtaggggagggaaattccagggTtTcatatataagatgacacaccCGctgcacactTctTtagaaagTca  
 CGaCGcacagTactgtgCGTcacaggtattgagaaacaccacatagagTcaattgactTgtTtaacctataac  
 ctTttTctcccacatagTtagTtagTaatcacaCGgaaacagTgctctgaaagacattTctggacacatCGTatac  
 agcacagccattTcaaatcaaCGgcaacagaaCGcaCGaagaacctggTttTctTcaagcatgagcagTtct  
 cattTtacaacatgtTttTaaacataattcagaaagTgcaatctTtTgcatgacaaccagataattTctaaaggtTactg  
 TgagctgataaaattaaCGTtTggcaaggaggtcatggTttacaggtaggctgtcCGct

6

**B** LNCaP-specific FOXA1 binding sites

aggcaagcccaagtgactaagaatcacaccctgtctcttaggcacttaaatattacacaatgagtttacagccta  
 ggtaaacatttattaaagggattctatgtttcagattttgtcacataaatcctaattatctc **CG**aagaaatagaattgc  
 tctaagaa **CG**aagagattcctgtcaccatccttagcaactatgttactacaaccaactggaaggttgactagta  
 caaagttgtttacagaagtgaactcctatgtaacattacatatctataaaaatgtttcattaatctctctgagccctat  
 ttcttcca **CG**gtagaatgactatagtaaaaaattagtttaattatctcagaggttttaaggatcaaatgagatctta **C**  
**G**ggtaaaaactctcaggtaaactgtaaaagtattatgcaaggtaagtaactattatcttatttggaggaatacaattct  
 tgaatacaaacagttcctttggggaa

**2**

aagcacttgaaaagaattacatgggattaaattaaccctaaactttccctagttttccaacttatatgatgaaaatatttt  
 atattttcagatacatttcaaacatcttcatggaggaaaataaacaataaacaatctattccatttattcaataaaa  
 atccataaaaatccaa **CG**gtaatatcatagtcattgttgcctcttggcccaaatcaggaaattc **CG**gtgc **CG**t  
 ctttcatctct **CG**aggctgtgctagtgccagccatgtgaacagtcctctttgttagcacagtgtgtttacacagtga  
 ctctgtcccaggaccacacagtgtaaccaacaatccctgtcaatcacttctaatgaaaagacatgctga  
 agtttttaagtgagaaatcatgttatttccctaactcttctcagcattcaaatgggaacaggtaatgcttcagatgct  
 ttccacacaaa **CG**ttgatttcttccatgcctgctggcatagctctgtgtgtgtgttttctgtttgattgggattttaa  
 aacacacaaataagaggaactctactcttaccattttaaagtgcacagtaacagaattgttaactatatacacattgtt  
 atgtagtagatctctggaactgttcatcttgcagactgtaattctataatccattgaacagcaacactggggctttgac

**4**

ctgtcatgtgcagccttttatgagaatcttacttcaaagtaaaaaaaaaaaaaatctctcctaaggggaaggaggaa  
 acaggtataaaactttccatctatttccatgctgaaagctattatgctatacaataatcctacattcatctggtttacag  
 aaagcagaataaatgcagcataaggactagcaggcatattttcctaag **CG**ctccaccatgaattataagcatcc  
 actaacaatgatccctgtgtggaagaatgctcacaatcatctttcaaatatagga **CG**ctgtctgcattcaaga  
 ggttatgtttgtgatcacagcttt **CG**tttgggtccagttttctctcatttggtaaatatgataacatgttgataaagat  
 gaagtaagttccactgacagtgtttcccttggcatcctgggaagtgatctgtttagggtggctgtacaaaatctatttact  
 cagcaaacctaattttagctaaggaccaatgaatatgtatattgaaatgacaccactgtttgccaacaatgtcaggct  
 atcttggcagatcaggatgcacagac **CG**aacaagatgtgaaatattaaggacatcagaagtttaattctttaca  
 aagggagggaaaaagcagtcacttgggaactcagaagtaataactcatttacttgagaatattcaagcaaat  
 ttaatcttctctttttctacatttcaaggaataattgtcttcttattctcctcaccctctacacagccttttctctgtaac  
 tattgcaatatactattttaaaccacattttaaagtcatttaacttttcaatttacttatgggtaatatatatatattttt  
 tgagatggagctcattccattgcccag

**9**

agggtgtcatggtgtggtatgtcttatctgggactctgagctcaaggcatagtgattc **CG**ccaggtctgaacactct  
 gtgca **CG**cccctgtctcaccctgcagttaacttcagtgaattatgtgaacagcactttaaaggttttctg  
 aagcaacaacagcagaacactaata **CG**gggtcactgtggacc **CG**cttccctccacca **CG**ccagg **CG**tcc  
 agatcccactctctcagagatgc **CG**cttttgaccctccctggagcagccagtaggatctgcctccctccccag  
 caccca **CG**gccacactaagcagccccctgtgctcc **CG**ggtgggtctc **CG**cagtgtgcac **CG**taagggcca  
 gtctgcctgtacatcccagcccagccaca **CG**ccatgccaggtacacagcaggtgccccctggaagaggag **CG**t  
 ctaaagataacacaacaagataacaaggagga **CG**c **CG**cctgcctaa **CG**igtaataacagcc **CG**ttccctg  
 cataact **CG**igtggagcttggccaactgtttctcat **CG**agactggcttgtttatacacc **CG**cttctgtat **CG**aaact  
 ggcacagaaaacaaaaagagagagaaaacaagtcaatacttctcagagttgttcagaggggaaa **CG**ggcc  
 ttttcttggctatgtcacagaaga **CG**gggaaccccacagcaaacctccagttttaaataaatgactggattttgcac  
 ccagagcctacaacatcctcagcactcctttgtcaagattctgtagcagtttagctaaaagccatataaagaaa  
 caggagcaaggggaaggggaagatcctgcaggtgagaagctgggaggtctccctcc **CG**gtgac **CG**gctcccc  
 agctaactgagtggtatggttctcccaggggaatggatcagcccttggcaaggcattttggtaaatgaggatgct  
 gttcaaacaccaggttttctctacattgtccactttgttaaacacac cctaaaagcctgggctgggaaaggc  
 cccactcctgtactcctgcaacctctgcccagat **CG**ctgaagccactgttttccctccaaa

**10**

