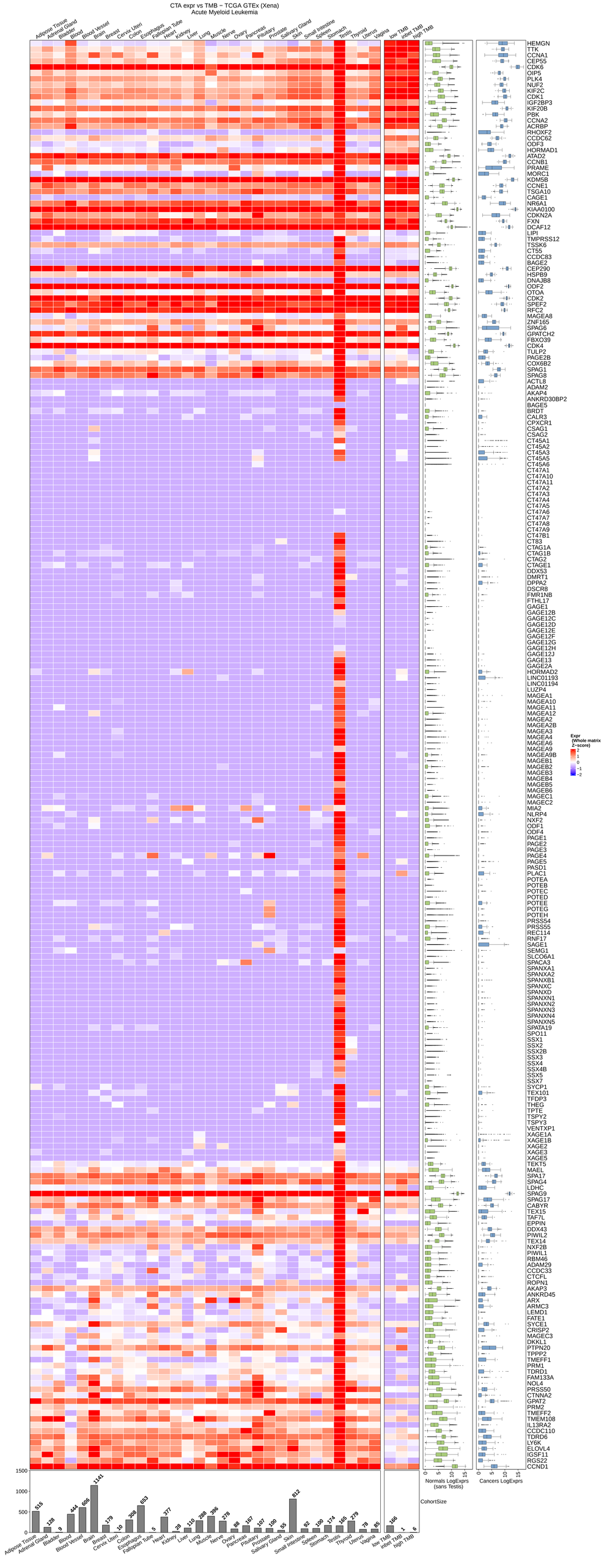
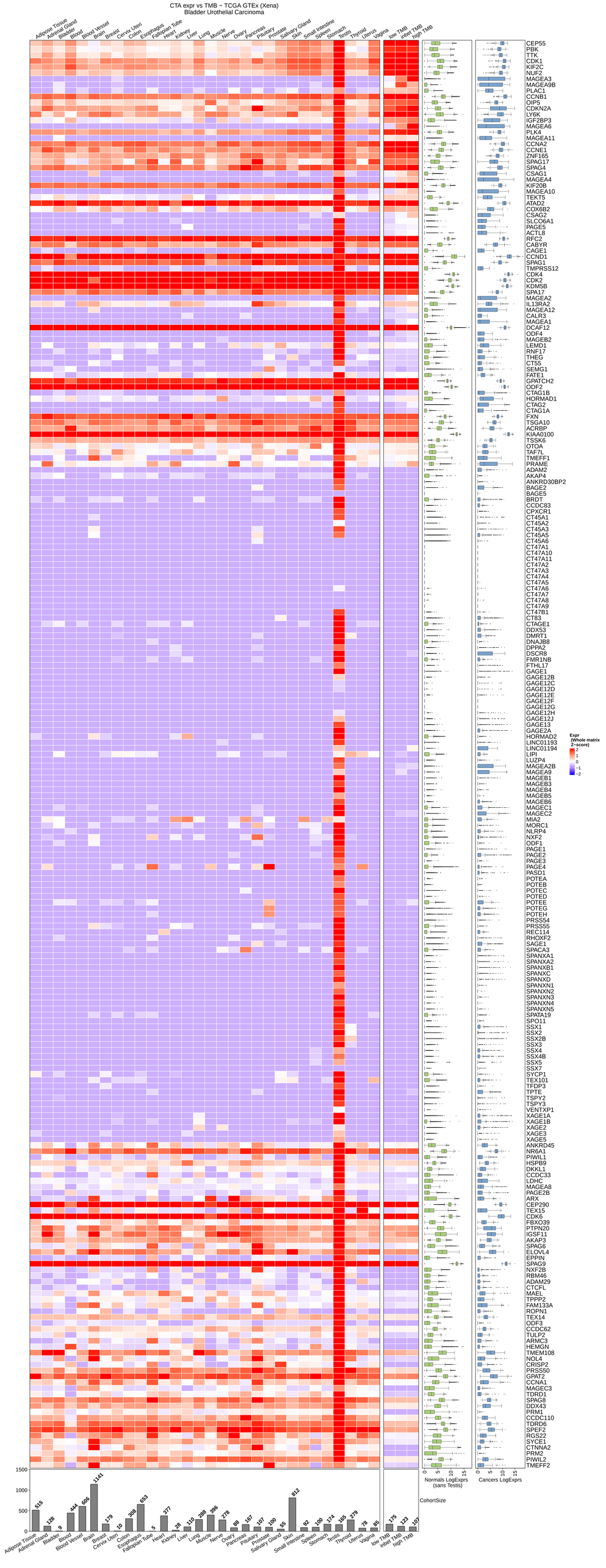
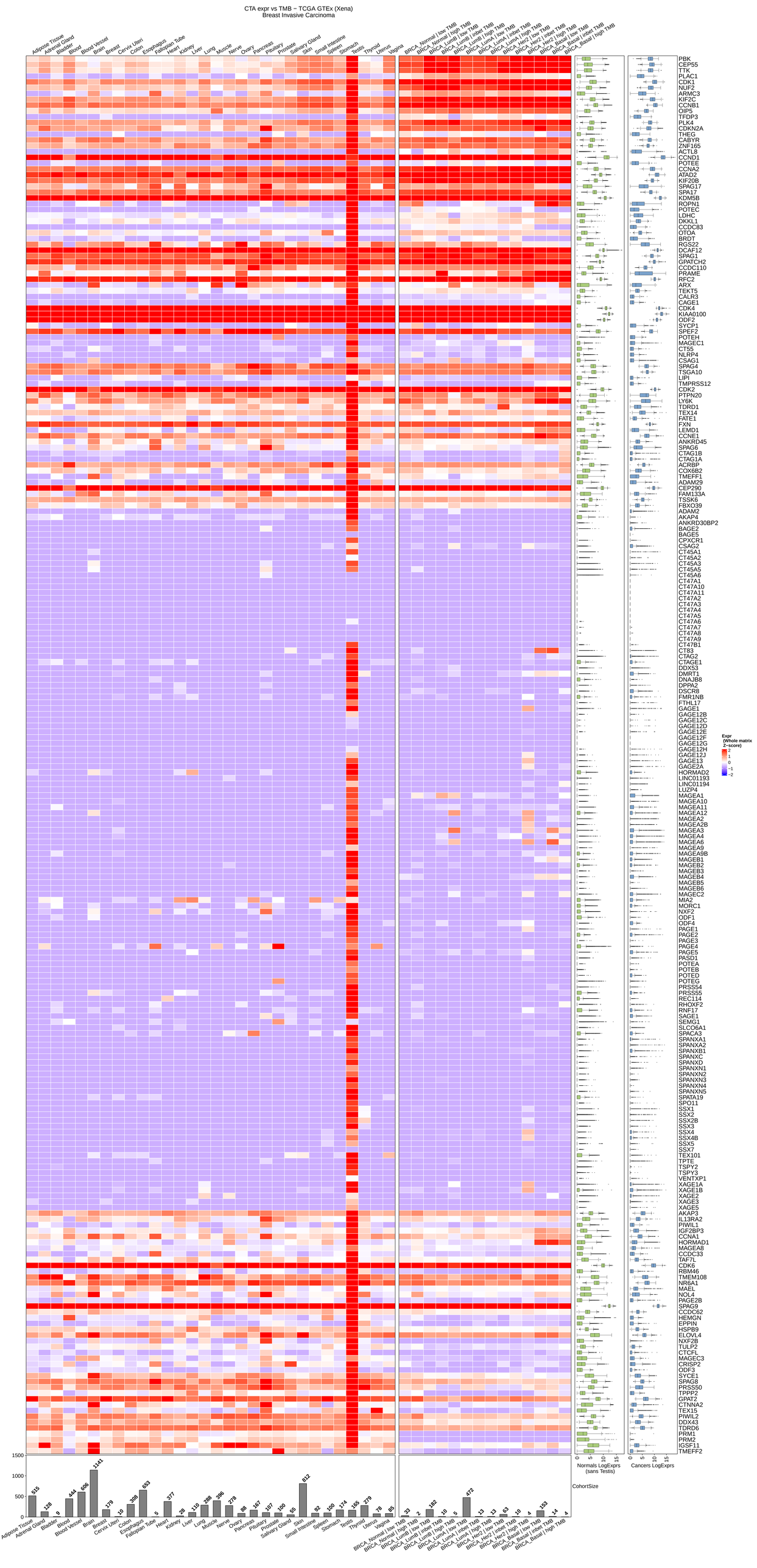
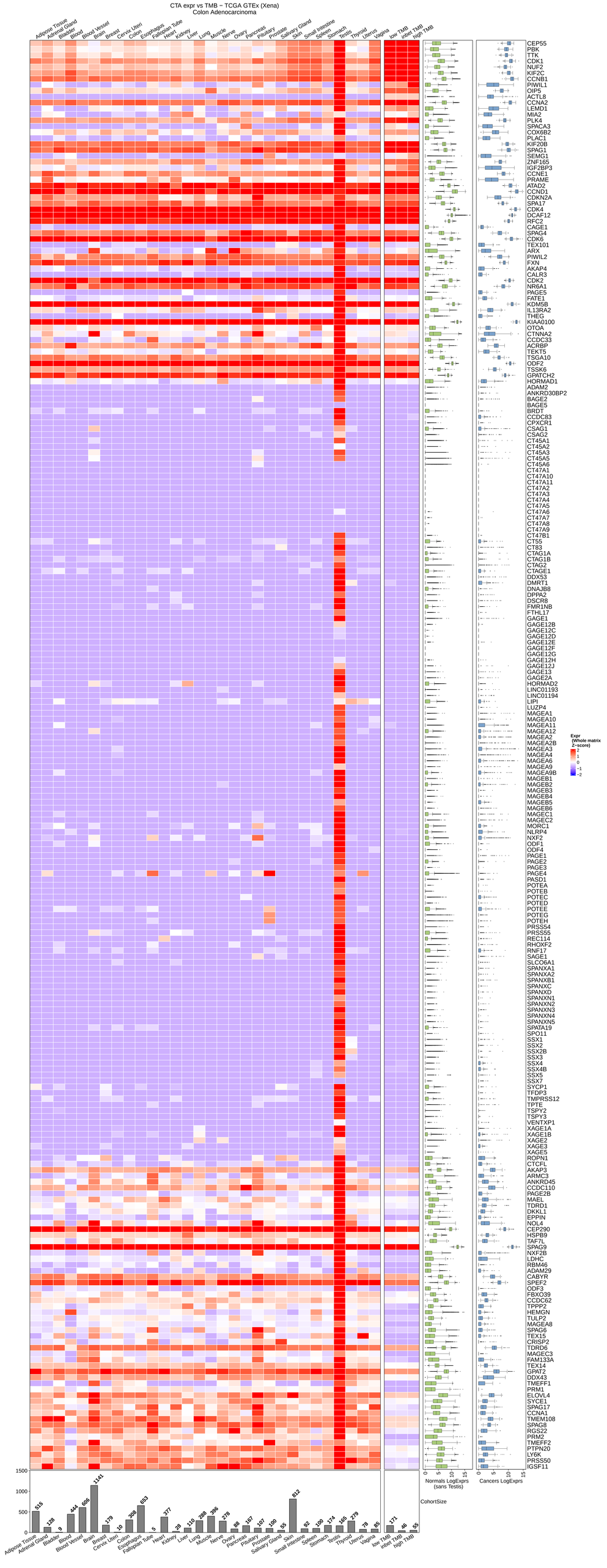
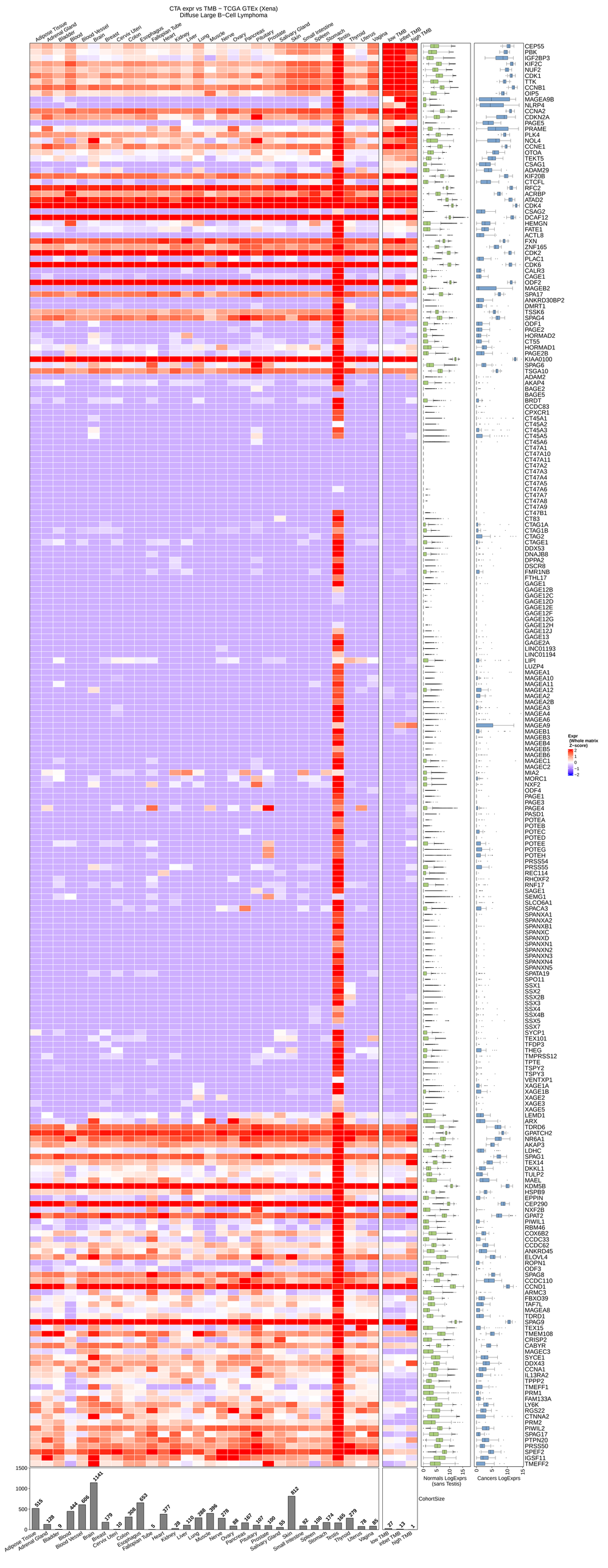
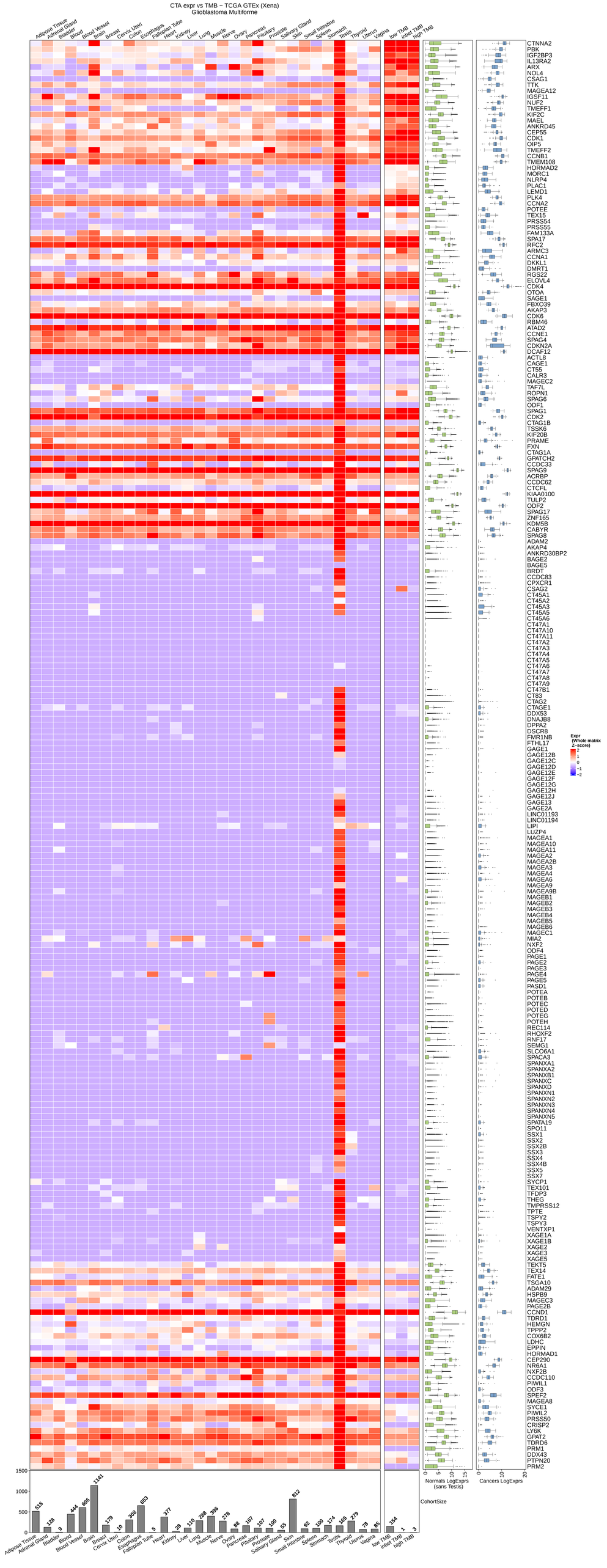

CTA expr vs TMB – TCGA GTEx (Xena)
Acute Myeloid Leukemia
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
606
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
166
1
6
HEMGN
TTK
CCNA1
CEP55
CDK6
OIP5
PLK4
NUF2
KIF2C
CDK1
IGF2BP3
KIF20B
PBK
CCNA2
ACRBP
RHOXF2
CCDC62
ODF3
HORMAD1
ATAD2
CCNB1
PRAME
MORC1
KDM5B
CCNE1
TSGA10
CAGE1
NR6A1
KIAA0100
CDKN2A
FXN
DCAF12
LIPI
TMPRSS12
TSSK6
CT55
CCDC83
BAGE2
CEP290
HSPB9
DNAJB8
ODF2
OTOA
CDK2
SPEF2
RFC2
MAGEA8
ZNF165
SPAG6
GPATCH2
FBXO39
CDK4
TULP2
PAGE2B
COX6B2
SPAG1
SPAG8
ACTL8
ADAM2
AKAP4
ANKRD30BP2
BAGE5
BRDT
CALR3
CPXCR1
CSAG1
CSAG2
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG1A
CTAG1B
CTAG2
CTAGE1
DDX53
DMRT1
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12I
GAGE13
GAGE2A
HORMAD2
LINC01193
LINC01194
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA12
MAGEA2
MAGEA2B
MAGEA3
MAGEA4
MAGEA6
MAGEA9
MAGEA9B
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MAGEC2
MIA2
NLRP4
NXF2
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PAGE5
PASD1
PLAC1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
PRSS55
REC114
RNF17
SAGE1
SEMG1
SLCO6A1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
THEG
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
TEKT5
MAEL
SPA17
SPAG4
LDHC
SPAG9
SPAG17
CABYR
TEX15
TAF7L
EPPIN
DDX43
PIWIL2
TEX14
NXF2B
PIWIL1
RBM46
ADAM29
CCDC33
CTCFL
ROPN1
AKAP3
ANKRD45
ARX
ARMC3
LEMD1
FATE1
SYCE1
CRISP2
MAGEC3
DKKL1
PTPN20
TPPP2
TMEFF1
PRM1
TDRD1
FAM133A
NOL4
PRSS50
CTNNA2
GPAT2
PRM2
TMEFF2
TMEM108
IL13RA2
CCDC110
TDRD6
LY6K
ELOVL4
IGSF11
RGS22
CCND1

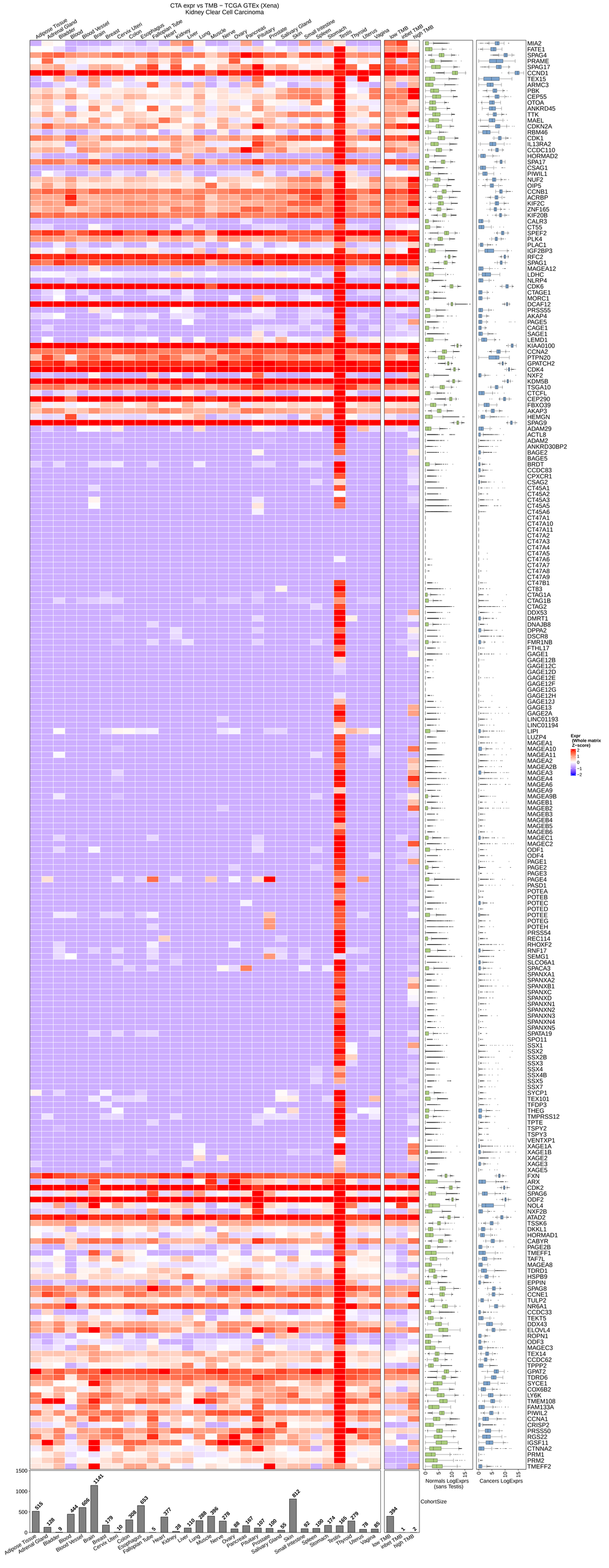

CTA expr vs TMB – TCGA GTEx (Xena)
Bladder Urothelial Carcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
Expr (Whole matrix Z-score)
Normals LogExprs (sans Testis)
Cancers LogExprs
CohortSize
CEP55
PBK
TTK
CDK1
KIF2C
NUF2
MAGEA3
MAGEA9B
PLAC1
CCNB1
OIP5
CDKN2A
LY6K
IGF2BP3
MAGEA6
PLK4
MAGEA11
CCNA2
CCNE1
ZNF165
SPAG17
SPAG4
CSAG1
MAGEA4
KIF20B
MAGEA10
TEKT5
ATAD2
COX6B2
CSAG2
SLCO6A1
PAGE5
ACTL8
RFC2
CABYR
CAGE1
CCND1
SPAG1
TMPRSS12
CDK4
CDK2
KDM5B
SPA17
MAGEA2
IL13RA2
MAGEA12
CALR3
MAGEA1
DCAF12
ODF4
MAGEB2
LEMD1
RNF17
THEG
CT55
SEMG1
FATE1
GPATCH2
ODF2
CTAG1B
HORMAD1
CTAG2
CTAG1A
FXN
TSGA10
ACRBP
KIAA0100
TSSK6
OTOA
TAF7L
TMEFF1
PRAME
ADAM2
AKAP4
ANKRD30BP2
BAGE2
BAGE5
BRDT
CCDC83
CPXCR1
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAGE1
DDX53
DMRT1
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
HORMAD2
LINC01193
LINC01194
LIPI
LUZP4
MAGEA2B
MAGEA9
MAGEB1
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MAGEC2
MIA2
MORC1
NLRP4
NXF2
ODF1
PAGE1
PAGE2
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
PRSS55
REC114
RHOXF2
SAGE1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
ANKRD45
NR6A1
PIWIL1
HSPB9
DKKL1
CCDC33
LDHC
MAGEA8
PAGE2B
ARX
CEP290
TEX15
CDK6
FBXO39
PTPN20
IGSF11
AKAP3
SPAG6
ELOVL4
EPPIN
SPAG9
NXF2B
RBM46
ADAM29
CTCFL
MAEL
TPPP2
FAM133A
RQPN1
TEX14
ODF3
CCDC62
TULP2
ARMC3
HEMGN
TMEM108
NOL4
CRISP2
PRSS50
GPAT2
CCNA1
MAGEC3
TDRD1
SPAG8
DDX43
PRM1
CCDC110
TDRD6
SPEF2
RGS22
SYCE1
CTNNA2
PRM2
PIWIL2
TMEFF2
515
128
9
448
606
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
175
123
107

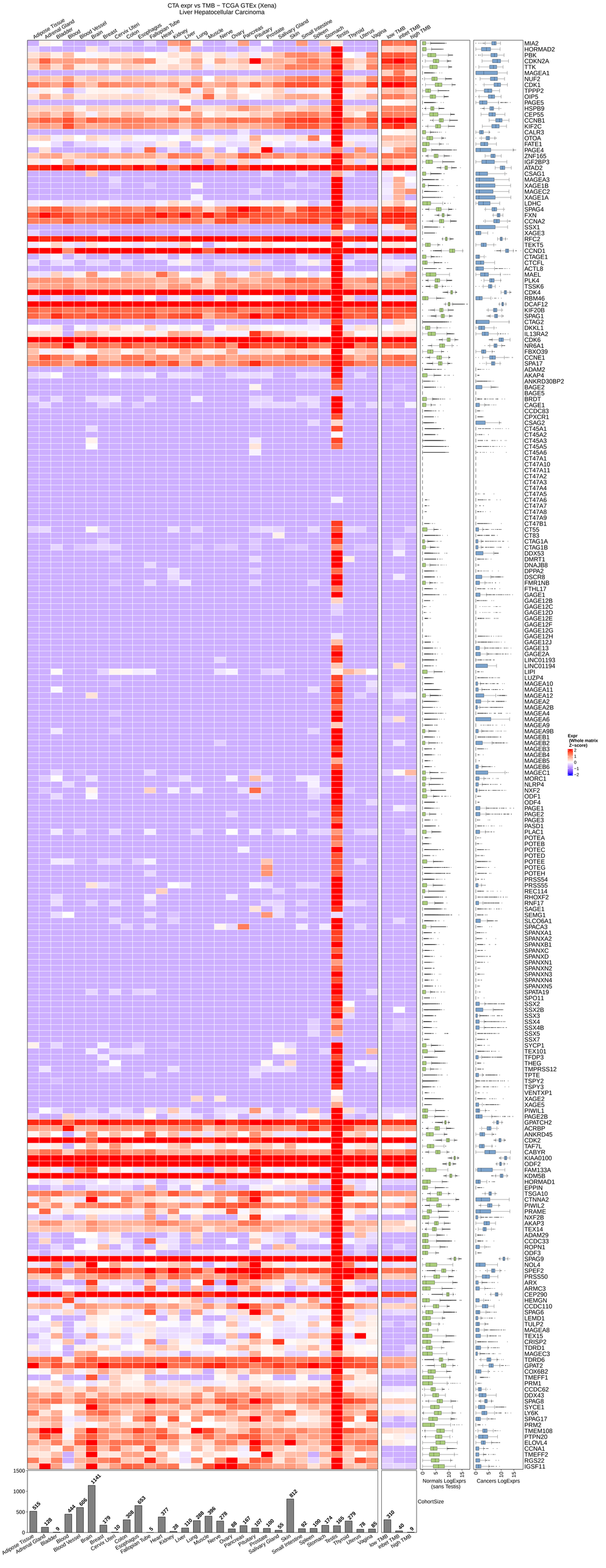

CTA expr vs TMB – TCGA GTEx (Xena)
Breast Invasive Carcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
BRCA_Normal | low TMB
BRCA_Normal | high TMB
BRCA_Lumb | low TMB
BRCA_Lumb | high TMB
BRCA_Lumb | inbet TMB
BRCA_Lumb | high TMB
BRCA_Luma | low TMB
BRCA_Luma | high TMB
BRCA_Luma | inbet TMB
BRCA_Luma | high TMB
BRCA_Her2 | low TMB
BRCA_Her2 | inbet TMB
BRCA_Her2 | high TMB
BRCA_Basal | low TMB
BRCA_Basal | high TMB
Normals LogExprs
(sans Testis)
Cancers LogExprs
Expr
(Whole matrix
Z−score)
CohortSize
PBK
CEP55
TTK
PLAC1
CDK1
NUF2
ARMC3
KIF2C
CCNB1
OIP5
TFDP3
PLK4
CDKN2A
THEG
CABYR
ZNF165
ACTL8
CCND1
POTEE
CCNA2
ATAD2
KIF20B
SPAG17
SPA17
KDM5B
ROPN1
POTEC
LDHC
DKKL1
CCDC83
OTOA
BRDT
RGS22
DCAF12
SPAG1
GPATCH2
CCDC110
PRAME
RFC2
ARX
TEKT5
CALR3
CAGE1
CDK4
KIAA0100
ODF2
SYCP1
SPEF2
POTEH
MAGEC1
CT55
NLRP4
CSAG1
SPAG4
TSGA10
LIPI
TMPRSS12
CDKZ
PTPN20
LY6K
TDRD1
TEX14
FATE1
FXN
LEMD1
CCNE1
ANKRD45
SPAG6
CTAG1B
CTAG1A
ACRBP
COX6B2
TMEFF1
ADAM29
CEP290
FAM133A
TSSK6
FBXO39
ADAM2
AKAP4
ANKRD30BP2
BAGE2
BAGE5
CPXCR1
CSAG2
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG2
CTAGE1
DDX53
DMRT1
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
HORMAD2
LINC01193
LINC01194
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA12
MAGEA2
MAGEA2B
MAGEA3
MAGEA4
MAGEA6
MAGEA9
MAGEA9B
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC2
MIA2
MORC1
NXF2
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PAGE5
PASD1
POTEA
POTEB
POTED
POTEG
PRSS54
PRSS55
REC114
RHOXF2
RNF17
SAGE1
SEMG1
SLCO6A1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
TEX101
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
AKAP3
IL13RA2
PIWIL1
IGF2BP3
CCNA1
HORMAD1
MAGEA8
CCDC33
TAF7L
CDK6
RBM46
TMEM108
NR6A1
MAEL
NOL4
PAGE2B
SPAG9
CCDC62
HEMGN
EPPIN
HSPB9
ELOVL4
NXF2B
TULP2
CTCFL
MAGEC3
CRISP2
ODF3
SYCE1
SPAG8
PRSS50
TPPP2
GPAT2
CTNNA2
TEX15
PIWIL2
DDX43
TDRD6
PRM1
PRM2
IGSF11
TMEFF2
515
128
9
444
606
1141
179
10
398
653
5
377
20
110
288
386
278
98
167
107
100
55
812
92
100
174
165
279
78
85
33
2
182
10
5
472
13
13
63
10
4
153
14
4

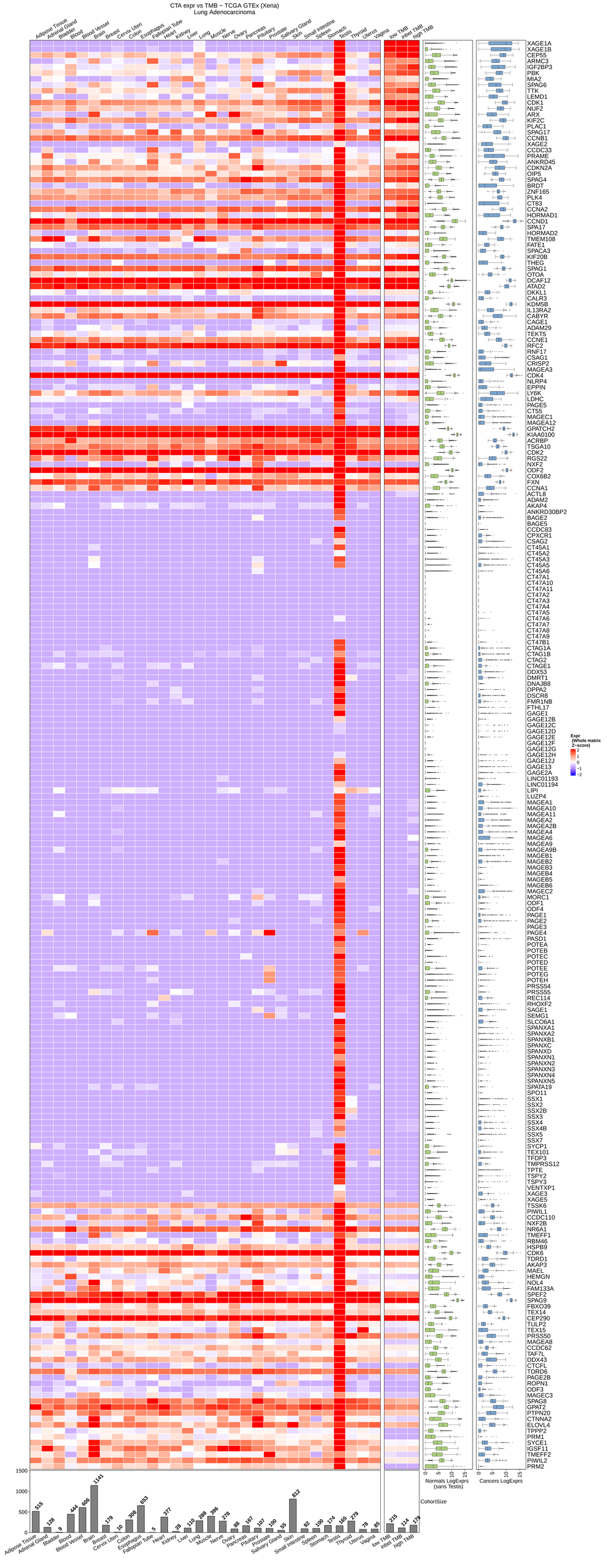

CTA expr vs TMB – TCGA GTEx (Xena)
Colon Adenocarcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testes
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
Normals LogExprs
(sans Testis)
Cancers LogExprs
Expr
(Whole matrix
Z-score)
CohortSize
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
171
46
55

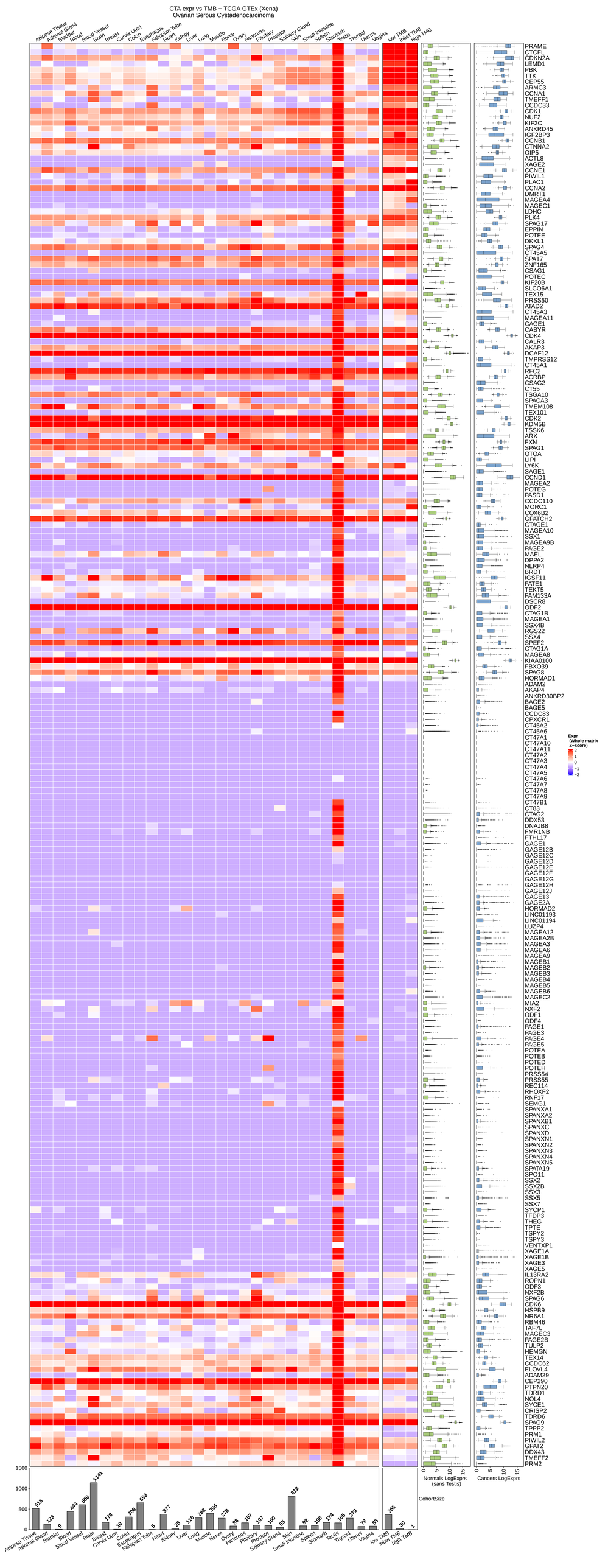

CTA expr vs TMB – TCGA GTEx (Xena)
Diffuse Large B−Cell Lymphoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
inter TMB
high TMB
CEP55
PBK
IGF2BP3
KIF2C
NUF2
CDK1
TTK
CCNB1
OIP5
MAGEA9B
NLRP4
CCNA2
CDKN2A
PAGE5
PRAME
PLK4
NOL4
CCNE1
OTOA
TEKT5
CSAG1
ADAM29
KIF20B
CTCFL
RFC2
ACRBP
ATAD2
CDK4
CSAG2
DCAF12
HEMGN
FATE1
ACTL8
FXN
ZNF165
CDK2
PLAC1
CDK6
CALR3
CAGE1
ODF2
MAGEB2
SPA17
ANKRD30BP2
DMRT1
TSSK6
SPAG4
ODF1
PAGE2
HORMAD2
CT55
HORMAD1
PAGE2B
KIAA0100
SPAG6
TSGA10
ADAM2
AKAP4
BAGE2
BAGE5
BRDT
CCDC83
CPXCR1
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG1A
CTAG1B
CTAG2
CTAGE1
DDX53
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
LINC01193
LINC01194
LIPI
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA12
MAGEA2
MAGEA2B
MAGEA3
MAGEA4
MAGEA6
MAGEA9
MAGEB1
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MAGEC2
MIA2
MORC1
NXF2
ODF4
PAGE1
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
PRSS55
REC114
RHOXF2
RNF17
SAGE1
SEMG1
SLC06A1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
THEG
TMPRSS12
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
LEMD1
ARX
TDRD6
GPATCH2
NR6A1
AKAP3
LDHC
SPAG1
TEX14
DKKL1
TULP2
MAEL
KDM5B
HSPB9
EPPIN
CEP290
NXF2B
GPAT2
PIWIL1
RBM46
COX6B2
CCDC33
CCDC62
ANKRD45
ELOVL4
ROPN1
ODF3
SPAG8
CCDC110
CCND1
ARMC3
FBXO39
TAF7L
MAGEA8
TDRD1
SPAG9
TEX15
TMEM108
CRISP2
CABYR
MAGEC3
SYCE1
DDX43
CCNA1
IL13RA2
TPPP2
TMEFF1
PRM1
FAM133A
LY6K
RGS22
CTNNA2
PRM2
PIWIL2
SPAG17
PTPN20
PRSS50
SPEF2
IGSF11
TMEFF2
Expr
(Whole matrix
Z−score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
27
13
1

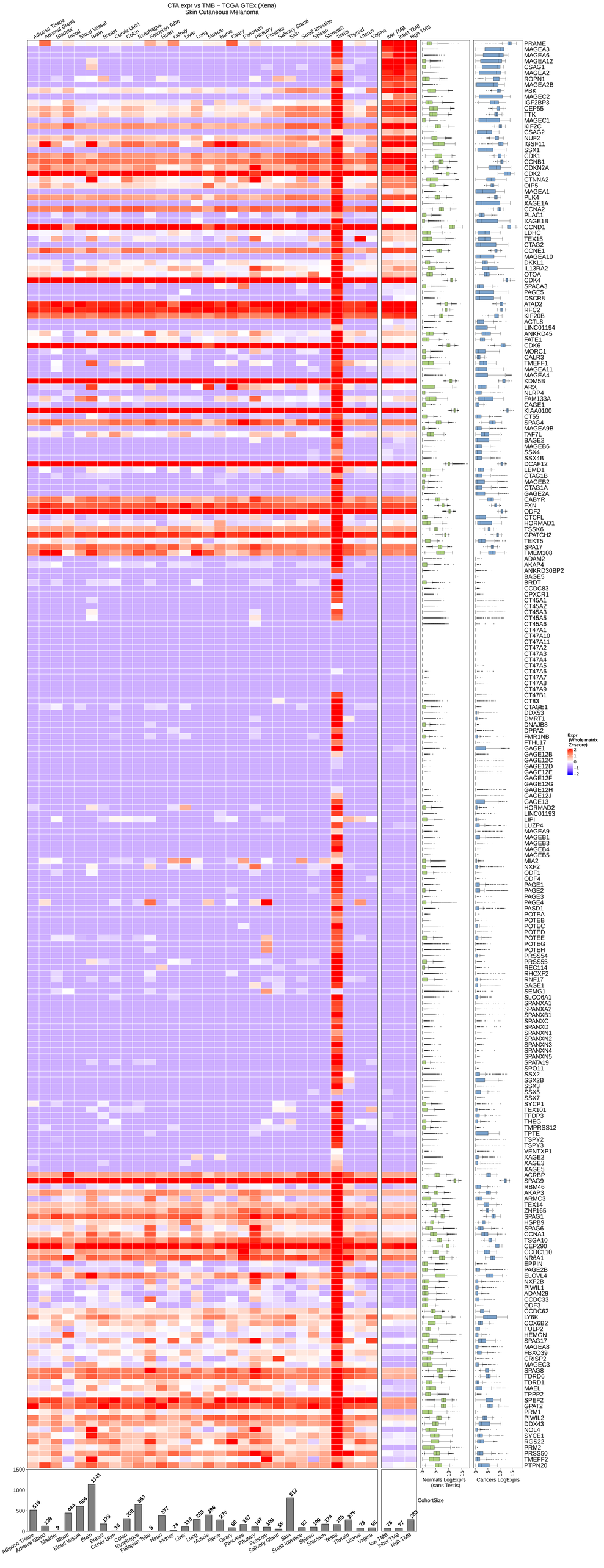

CTA expr vs TMB – TCGA GTEx (Xena)
Glioblastoma Multiforme
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
inter TMB
high TMB
CTNNA2
PBK
IGF2BP3
IL13RA2
ARX
NOL4
CSAG1
TTK
MAGEA12
IGSF11
NUF2
TMEFF1
KIF2C
MAEL
ANKRD45
CEP55
CDK1
OIP5
TMEFF2
CCNB1
TMEM108
HORMAD2
MORC1
NLRP4
PLAC1
LEMD1
PLK4
CCNA2
POTEE
TEX15
PRSS54
PRSS55
FAM133A
SPA17
RFC2
ARMC3
CCNA1
DKKL1
DMRT1
RGS22
ELOVL4
CDK4
OTOA
SAGE1
FBXO39
AKAP3
CDK6
RBM46
ATAD2
CCNE1
SPAG4
CDKN2A
DCAF12
ACTL8
CAGE1
CT55
CALR3
MAGEC2
TAF7L
ROPN1
SPAG6
ODF1
SPAG1
CDK2
CTAG1B
TSSK6
KIF20B
PRAME
FXN
CTAG1A
GPATCH2
CCDC33
SPAG9
ACRBP
CCDC62
CTCFL
KIAA0100
TULP2
ODF2
SPAG17
ZNF165
KDM5B
CABYR
SPAG8
ADAM2
AKAP4
ANKRD30BP2
BAGE2
BAGE5
BRDT
CCDC83
CPXCR1
CSAG2
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG2
CTAGE1
DDX53
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
LINC01193
LINC01194
LIPI
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA2
MAGEA2B
MAGEA3
MAGEA4
MAGEA6
MAGEA9
MAGEA9B
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MIA2
NXF2
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PAGE5
PASD1
POTEA
POTEB
POTEC
POTED
POTEG
POTEH
REC114
RHOXF2
RNF17
SEMG1
SLCO6A1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
THEG
TMPRSS12
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
TEKT5
TEX14
FATE1
TSGA10
ADAM29
HSPB9
MAGEC3
PAGE2B
CCND1
TDRD1
HEMGN
TPPP2
COX6B2
LDHC
EPPIN
HORMAD1
CEP290
NR6A1
NXF2B
CCDC110
PIWIL1
ODF3
SPEF2
MAGEA8
SYCE1
PIWIL2
PRSS50
CRISP2
LY6K
GPAT2
TDRD6
PRM1
DDX43
PTPN20
PRM2
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
154
1
3

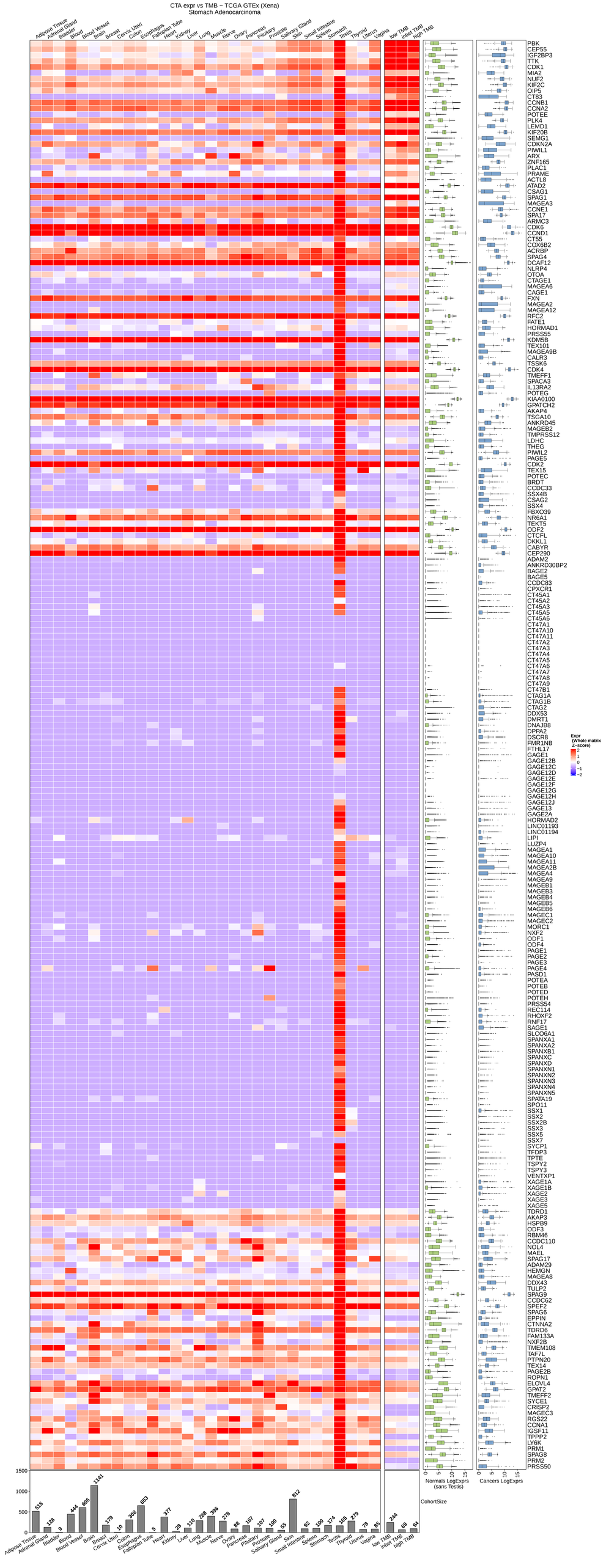

CTA expr vs TMB – TCGA GTEx (Xena)
Kidney Clear Cell Carcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
165
279
78
85
384
1
2
MIA2
FATE1
SPAG4
PRAME
SPAG17
CCND1
TEX15
ARMC3
PBK
CEP55
OTOA
ANKRD45
TTK
MAEL
CDKN2A
RBM46
CDK1
IL13RA2
CCDC110
HORMAD2
SPA17
CSAG1
PIWIL1
NUF2
OIP5
CCNB1
ACRBP
KIF2C
ZNF165
KIF20B
CALR3
CT55
SPEF2
PLK4
PLAC1
IGF2BP3
RFC2
SPAG1
MAGEA12
LDHC
NLRP4
CDK6
CTAGE1
MORC1
DCAF12
PRSS55
AKAP4
PAGE5
CAGE1
SAGE1
LEMD1
KIAA0100
CCNA2
PTPN20
GPATCH2
CDK4
NXF2
KDM5B
TSGA10
CTCFL
CEP290
FBXO39
AKAP3
HEMGN
SPAG9
ADAM29
ACTL8
ADAM2
ANKRD30BP2
BAGE2
BAGE5
BRDT
CCDC83
CPXCR1
CSAG2
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG1A
CTAG1B
CTAG2
DDX53
DMRT1
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
LINC01193
LINC01194
LIPI
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA2
MAGEA2B
MAGEA3
MAGEA4
MAGEA6
MAGEA9
MAGEA9B
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MAGEC2
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
REC114
RHOXF2
RNF17
SEMG1
SLC06A1
SPACA3
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
THEG
TMPRSS12
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
FXN
ARX
CDK2
SPAG6
ODF2
NOL4
NXF2B
ATAD2
TSSK6
DKKL1
HORMAD1
CABYR
PAGE2B
TMEFF1
TAF7L
MAGEA8
TDRD1
HSPB9
EPPIN
SPAG8
CCNE1
TULP2
NR6A1
CCDC33
TEKT5
DDX43
ELOVL4
ROPN1
ODF3
MAGEC3
TEX14
CCDC62
TPPP2
GPAT2
TDRD6
SYCE1
COX6B2
LY6K
TMEM108
FAM133A
PIWIL2
CCNA1
CRISP2
PRSS50
RGS22
IGSF11
CTNNA2
PRM1
PRM2
TMEFF2


CTA expr vs TMB – TCGA GTEx (Xena)
Liver Hepatocellular Carcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
inter TMB
high TMB
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
Expr
(Whole matrix
Z-score)
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
310
40
9


CTA expr vs TMB – TCGA GTEx (Xena)
Lung Adenocarcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
606
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
165
279
78
85
215
114
179
XAGE1A
XAGE1B
CEP55
ARMC3
IGF2BP3
PBK
MIA2
SPAG6
TTK
LEMD1
CDK1
NUF2
ARX
KIF2C
PLAC1
SPAG17
CCNB1
XAGE2
CCDC33
PRAME
ANKRD45
CDKN2A
OIP5
SPAG4
BRDT
ZNF165
PLK4
CT83
CCNA2
HORMAD1
CCND1
SPA17
HORMAD2
TMEM108
FATE1
SPACA3
KIF20B
THEG
SPAG1
OTOA
DCAF12
ATAD2
DKKL1
CALR3
KDM5B
IL13RA2
CABYR
CAGE1
ADAM29
TEKT5
CCNE1
RFC2
RNF17
CSAG1
CRISP2
MAGEA3
CDK4
NLRP4
EPPIN
LY6K
LDHC
PAGE5
CT55
MAGEC1
MAGEA12
GPATCH2
KIAA0100
ACRBP
TSGA10
CDK2
RGS22
NXF2
ODF2
COX6B2
FXN
CCNA1
ACTL8
ADAM2
AKAP4
ANKRD30BP2
BAGE2
BAGE5
CCDC83
CPXCR1
CSAG2
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CTAG1A
CTAG1B
CTAG2
CTAGE1
DDX53
DMRT1
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
LINC01193
LINC01194
LIPI
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA2
MAGEA2B
MAGEA4
MAGEA6
MAGEA9
MAGEA9B
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC2
MORC1
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
PRSS55
REC114
RHOXF2
SAGE1
SEMG1
SLC06A1
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX4
SSX4B
SSX5
SSX7
SYCP1
TEX101
TFDP3
TMPRSS12
TPTE
TSPY2
TSPY3
VENTXP1
XAGE3
XAGE5
TSSK6
PIWIL1
CCDC110
NXF2B
NR6A1
TMEFF1
RBM46
HSPB9
CDK6
TDRD1
AKAP3
MAEL
HEMGN
NOL4
FAM133A
SPEF2
SPAG9
FBXO39
TEX14
CEP290
TULP2
TEX15
PRSS50
MAGEA8
CCDC62
TAF7L
DDX43
CTCFL
TDRD6
PAGE2B
ROPN1
ODF3
MAGEC3
SPAG8
GPAT2
PTPN20
CTNNA2
ELOVL4
TPPP2
PRM1
SYCE1
IGSF11
TMEFF2
PIWIL2
PRM2


CTA expr vs TMB – TCGA GTEx (Xena)
Ovarian Serous Cystadenocarcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
inter TMB
high TMB
PRAME
CTCFL
CDKN2A
LEMD1
PBK
TTK
CEP55
ARMC3
CCNA1
TMEFF1
CCDC33
CDK1
NUF2
KIF2C
ANKRD45
IGF2BP3
CCNB1
CTNNA2
OIP5
ACTL8
XAGE2
CCNE1
PIWIL1
PLAC1
CCNA2
DMRT1
MAGEA4
MAGEC1
LDHC
PLK4
SPAG17
EPPIN
POTEE
DKKL1
SPAG4
CT45A5
SPA17
ZNF165
CSAG1
POTEC
KIF20B
SLCO6A1
TEX15
PRSS50
ATAD2
CT45A3
MAGEA11
CAGE1
CABYR
CDK4
CALR3
AKAP3
DCAF12
TMPRSS12
CT45A1
RFC2
ACRBP
CSAG2
CTS5
TSGA10
SPACA3
TMEM108
TEX101
CDK2
KDM5B
TSSK6
ARX
FXN
SPAG1
OTOA
LIPI
LY6K
SAGE1
CCND1
MAGEA2
POTEG
PASD1
CCDC110
MORC1
COX6B2
GPATCH2
CTAGE1
MAGEA10
SSX1
MAGEA9B
PAGE2
MAEL
DPPA2
NLRP4
BRDT
IGSF11
FATE1
TEKT5
FAM133A
DSCR8
ODF2
CTAG1B
MAGEA1
SSX4B
RGS22
SSX4
SPEF2
CTAG1A
MAGEA8
KIAA0100
FBXO39
SPAG8
HORMAD1
ADAM2
AKAP4
ANKRD30BP2
BAGE2
BAGE5
CCDC83
CPXCR1
CT45A2
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAG2
DDX53
DNAJB8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
HORMAD2
LINC01193
LINC01194
LUZP4
MAGEA12
MAGEA2B
MAGEA3
MAGEA6
MAGEA9
MAGEB1
MAGEB2
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC2
MIA2
NXF2
ODF1
ODF4
PAGE1
PAGE3
PAGE4
PAGE5
POTEA
POTEB
POTED
POTEH
PRSS54
PRSS55
REC114
RHOXF2
RNF17
SEMG1
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX2
SSX2B
SSX3
SSX5
SSX7
SYCP1
TFDP3
THEG
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE3
XAGE5
IL13RA2
ROPN1
ODF3
NXF2B
SPAG6
CDK6
HSPB9
NR6A1
RBM46
TAF7L
MAGEC3
PAGE2B
TULP2
HEMGN
TEX14
CCDC62
ELOVL4
ADAM29
CEP290
PTPN20
TDRD1
NOL4
SYCE1
CRISP2
TDRD6
SPAG9
TPPP2
PRM1
PIWIL2
GPAT2
DDX43
TMEFF2
PRM2
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
686
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
365
30
1


CTA expr vs TMB – TCGA GTEx (Xena)
Skin Cutaneous Melanoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
intermediate TMB
high TMB
PRAME
MAGEA3
MAGEA6
MAGEA12
CSAG1
MAGEA2
ROPN1
MAGEA2B
PBK
MAGEC2
IGF2BP3
CEP55
TTK
MAGEC1
KIF2C
CSAG2
NUF2
IGSF11
SSX1
CDK1
CCNB1
CDKN2A
CDK2
CTNNA2
OIP5
MAGEA1
PLK4
XAGE1A
CCNA2
PLAC1
XAGE1B
CCND1
LDHC
TEX15
CTAG2
CCNE1
MAGEA10
DKKL1
IL13RA2
OTOA
CDK4
SPACA3
PAGE5
DSCR8
ATAD2
RFC2
KIF20B
ACTL8
LINC01194
ANKRD45
FATE1
CDK6
MORC1
CALR3
TMEFF1
MAGEA11
MAGEA4
KDM5B
ARX
NLRP4
FAM133A
CAGE1
KIAA0100
CT55
SPAG4
MAGEA9B
TAF7L
BAGE2
MAGEB6
SSX4
SSX4B
DCAF12
LEMD1
CTAG1B
MAGEB2
CTAG1A
GAGE2A
CABYR
FXN
ODF2
CTCFL
HORMAD1
TSSK6
GPATCH2
TEKT5
SPA17
TMEM108
ADAM2
AKAP4
ANKRD30BP2
BAGE5
BRDT
CCDC83
CPXCR1
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CT83
CTAGE1
DDX53
DMRT1
DNAJB8
DPPA2
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
HORMAD2
LINC01193
LIPI
LUZP4
MAGEA9
MAGEB1
MAGEB3
MAGEB4
MAGEB5
MIA2
NXF2
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTEC
POTED
POTEE
POTEG
POTEH
PRSS54
PRSS55
REC114
RHOXF2
RNF17
SAGE1
SEMG1
SLCO6A1
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX2
SSX2B
SSX3
SSX5
SSX7
SYCP1
TEX101
TFDP3
THEG
TMPRSS12
TPTE
TSPY2
TSPY3
VENTXP1
XAGE2
XAGE3
XAGE5
ACTRBP
SPAG9
RBM46
AKAP3
ARMC3
TEX14
ZNF165
SPAG1
HSPB9
SPAG6
CCNA1
TSGA10
CEP290
CCDC110
NR6A1
EPPIN
PAGE2B
ELOVL4
NXF2B
PIWIL1
ADAM29
CCDC33
ODF3
CCDC62
LY6K
COX6B2
TULP2
HEMGN
SPAG17
MAGEA8
FBXO39
CRISP2
MAGEC3
SPAG8
TDRD6
TDRD1
MAEL
TPPP2
SPEF2
GPAT2
PRM1
PIWIL2
DDX43
NOL4
SYCE1
RGS22
PRM2
PRSS50
TMEFF2
PTPN20
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
0
5
10
15
CohortSize
1500
1000
500
0
515
128
9
448
606
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
185
279
78
85
76
77
203


CTA expr vs TMB – TCGA GTEx (Xena)
Stomach Adenocarcinoma
Adipose Tissue
Adrenal Gland
Bladder
Blood
Blood Vessel
Brain
Breast
Cervix Uteri
Colon
Esophagus
Fallopian Tube
Heart
Kidney
Liver
Lung
Muscle
Nerve
Ovary
Pancreas
Pituitary
Prostate
Salivary Gland
Skin
Small Intestine
Spleen
Stomach
Testis
Thyroid
Uterus
Vagina
low TMB
inter TMB
high TMB
Expr
(Whole matrix
Z-score)
2
1
0
−1
−2
Normals LogExprs
(sans Testis)
Cancers LogExprs
CohortSize
515
128
9
448
606
1141
179
10
308
653
5
377
28
110
288
386
278
88
107
107
100
55
812
92
100
174
165
279
78
85
244
89
94
PBK
CEP55
IGF2BP3
TTK
CDK1
MIA2
NUF2
KIF2C
OIP5
CT83
CCNB1
CCNA2
POTEE
PLK4
LEMD1
KIF20B
SEMG1
CDKN2A
PIWIL1
ARX
ZNF165
PLAC1
PRAME
ACTL8
ATAD2
CSAG1
SPAG1
MAGEA3
CCNE1
SPA17
ARMC3
CDK6
CCND1
CT55
COX6B2
ACRBP
SPAG4
DCAF12
NLRP4
OTOA
CTAGE1
MAGEA6
CAGE1
FXN
MAGEA2
MAGEA12
RFC2
FATE1
HORMAD1
PRSS55
KDM5B
TEX101
MAGEA9B
CALR3
TSSK6
CDK4
TMEFF1
SPACA3
IL13RA2
POTEG
KIAA0100
GPATCH2
AKAP4
TSGA10
ANKRD45
MAGEB2
TMPRSS12
LDHC
THEG
PIWIL2
PAGE5
CDK2
TEX15
POTEC
BRDT
CCDC33
SSX4B
CSAG2
SSX4
FBXO39
NR6A1
TEKT5
ODF2
CTCFL
DKKL1
CABYR
CEP290
ADAM2
ANKRD30BP2
BAGE2
BAGE5
CCDC83
CPXCR1
CT45A1
CT45A2
CT45A3
CT45A5
CT45A6
CT47A1
CT47A10
CT47A11
CT47A2
CT47A3
CT47A4
CT47A5
CT47A6
CT47A7
CT47A8
CT47A9
CT47B1
CTAG1A
CTAG1B
CTAG2
DDX53
DMRT1
DNAJB8
DPPA2
DSCR8
FMR1NB
FTHL17
GAGE1
GAGE12B
GAGE12C
GAGE12D
GAGE12E
GAGE12F
GAGE12G
GAGE12H
GAGE12J
GAGE13
GAGE2A
HORMAD2
LINC01193
LINC01194
LIPI
LUZP4
MAGEA1
MAGEA10
MAGEA11
MAGEA28
MAGEA4
MAGEA9
MAGEB1
MAGEB3
MAGEB4
MAGEB5
MAGEB6
MAGEC1
MAGEC2
MORC1
NXF2
ODF1
ODF4
PAGE1
PAGE2
PAGE3
PAGE4
PASD1
POTEA
POTEB
POTED
POTEH
PRSS54
REC114
RHOXF2
RNF17
SAGE1
SLCO6A1
SPANXA1
SPANXA2
SPANXB1
SPANXC
SPANXD
SPANXN1
SPANXN2
SPANXN3
SPANXN4
SPANXN5
SPATA19
SPO11
SSX1
SSX2
SSX2B
SSX3
SSX5
SSX7
SYCP1
TFDP3
TPTE
TSPY2
TSPY3
VENTXP1
XAGE1A
XAGE1B
XAGE2
XAGE3
XAGE5
TDRD1
AKAP3
HSPB9
ODF3
RBM46
CCDC110
NOL4
MAEL
SPAG17
ADAM29
HEMGN
MAGEA8
DDX43
TULP2
SPAG9
CCDC62
SPEF2
SPAG6
EPPIN
CTNNA2
TDRD6
FAM133A
NXF2B
TMEM108
TAF7L
PTPN20
TEX14
PAGE2B
ROPN1
ELOVL4
GPAT2
TMEFF2
SYCE1
CRISP2
MAGEC3
RGS22
CCNA1
IGSF11
TPPP2
LY6K
PRM1
SPAG8
PRM2
PRSS50