

Table 1: Commonly deregulated genes in metastases related to ion homeostasis. Select genes are up- or down- regulated compared to the primary tumor or the host tissue in all or most of the target sites. On the basis of 653 metastasis-associated gene expression profiles in GEO (2), this table displays the genes pertaining to ion homeostasis. Those sets of genes seem to constitute essential mediators of metastasis, possibly conveying the ability to survive and expand in a non-cognate microenvironment. Genes different from the primary tumor may represent necessary contributors for metastasis initiation, while the genes that distinguish metastases from the target host site are likely reflective of metastasis outgrowth. **A)** Genes significantly up-regulated in the metastases over host tissue. **B)** Genes significantly down-regulated in the metastases compared to host tissue. Liver = li, peritoneum = pe, ovary = ov, lymph node = ln, adrenal = ad, bone = bo, lung = lu. **C)** Genes significantly up-regulated in the metastases over primary tumors. **D)** Genes significantly down-regulated in the metastases over primary tumors. Ovary = ov, breast = br, prostate = pr, kidney = ki, stomach = st, colon = co.

[illegible]

Gene symbol	Tissues of gene listed	# Tissues of gene listed	SD of each gene	Na	K	Ca	Mg	Mn	Fe	Zn	Cl	other
MKNK2	liver:peritoneum:ovary:bone:adrenal:	5	0.10									
MYO9B	liver:peritoneum:ovary:lymph node:bone:adrenal:	6	0.06									
P2RX1	peritoneum:liver:ovary:adrenal:lung:	5	0.06									
PGS1	peritoneum:liver:ovary:bone:adrenal:	5	0.09									
TRPC1	peritoneum:lymph node:adrenal:	3	0.19									
NEDD4	peritoneum:bone:adrenal:	3	0.08									
A2M	peritoneum:liver:ovary:bone:adrenal:	5	0.18									
ANXA11	peritoneum:bone:adrenal:	3	0.04									
CACNG3	peritoneum:ovary:lymph node:adrenal:lung:	5	0.11									
CCL19	liver:bone:adrenal:	3	0.23									
JPH2	liver:peritoneum:ovary:bone:adrenal:	5	0.08									
P2RX7	peritoneum:liver:adrenal:	3	0.10									
PLA2G2A	liver:peritoneum:ovary:bone:adrenal:	5	0.09									
PLCD1	liver:peritoneum:ovary:bone:adrenal:	5	0.11									
PPIF	liver:ovary:peritoneum:adrenal:	4	0.27									
SF3B3	liver:peritoneum:adrenal:lung:	4	0.13									
TBRG4	liver:bone:adrenal:	3	0.09									
TNNC1	bone:adrenal:lung:	3	0.16									
TNNT1	ovary:lymph node:lung:	3	0.06									
TNNT3	peritoneum:liver:adrenal:	3	0.04									
GSN	peritoneum:bone:adrenal:	3	0.11									cadmium
ADA	liver:peritoneum:ovary:bone:adrenal:	5	0.12									
BSN	liver:peritoneum:ovary:lymph node:bone:adrenal:lung:	7	0.06									
CHN2	liver:peritoneum:lymph node:adrenal:lung:	5	0.11									
PPP1R10	peritoneum:ovary:bone:adrenal:lung:	5	0.09									
PRDM14	peritoneum:ovary:liver:adrenal:lung:	5	0.07									
RNF10	liver:peritoneum:ovary:bone:adrenal:	5	0.09									
RREB1	liver:peritoneum:bone:adrenal:lung:	5	0.05									
SALL1	peritoneum:liver:ovary:adrenal:lung:	5	0.10									
SIRT4	peritoneum:liver:ovary:lymph node:adrenal:lung:	6	0.07									
SLC30A4	liver:ovary:peritoneum:adrenal:	4	0.13									
SLC30A6	peritoneum:liver:adrenal:	3	0.06									
SP110	peritoneum:liver:lymph node:bone:adrenal:lung:	6	0.08									
TNKS	peritoneum:liver:ovary:bone:adrenal:	5	0.03									
USP4	peritoneum:liver:lymph node:bone:adrenal:	5	0.19									
ZKSCAN1	liver:ovary:lymph node:bone:adrenal:lung:	6	0.14									
ZNF551	ovary:liver:peritoneum:lymph node:adrenal:lung:	6	0.13									
DAK	liver:peritoneum:ovary:bone:adrenal:	5	0.11									cobalt
TAF1	peritoneum:ovary:lymph node:bone:adrenal:	5	0.12									
TAOK2	liver:peritoneum:bone:adrenal:lung:	5	0.08									
GALNT10	peritoneum:liver:ovary:lymph node:adrenal:lung:	6	0.08									
ABAT	peritoneum:liver:ovary:lymph node:bone:	5	0.07									
G6PD	liver:peritoneum:bone:adrenal:lung:	5	0.08									
GLRA3	peritoneum:ovary:liver:	3	0.08									
SLC12A1	peritoneum:liver:	2	0.00									
SLC12A2	peritoneum:liver:ovary:adrenal:	4	0.07									
NEDD4L	peritoneum:liver:bone:adrenal:	4	0.01									
SLC9A3	liver:peritoneum:bone:adrenal:lung:	5	0.10									
SNTA1	peritoneum:liver:ovary:lymph node:bone:lung:	6	0.08									
HSF1	ovary:peritoneum:bone:	3	0.10									copper, cadmium
ATF3	peritoneum:liver:bone:lung:	4	0.03									arsenic
CYP1A1	peritoneum:adrenal:lung:	3	0.15									iron
EIF2B5	peritoneum:liver:ovary:lymph node:bone:adrenal:	6	0.14									lithium
OGG1	peritoneum:liver:ovary:	3	0.17									cadmium
TNFSF4	liver:ovary:lung:	3	0.09									NO2
YAF2	liver:peritoneum:ovary:lymph node:bone:adrenal:lung:	7	0.06									metal

[illegible]