Papalexi positive controls

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Here we look at the SCEPTRE and Seurat DE p-values for the positive control pairs on the Papalexi (gene) data. These are of particular interest, because Mixscape labels many of the Papalexi perturbations as having no effect in any cells. Let's see whether some of these perturbations nevertheless show significant associations with the expressions of their target genes.

Gene	Seurat De p-value	SCEPTRE p-value	Survived Mixscape
JAK2	0.00e+00	8.0e-07	TRUE
STAT1	0.00e+00	8.0e-07	TRUE
IFNGR2	0.00e+00	8.0e-07	TRUE
STAT2	0.00e+00	8.0e-07	TRUE
CMTM6	0.00e+00	8.0e-07	FALSE
UBE2L6	0.00e+00	8.0e-07	FALSE
BRD4	0.00e+00	8.0e-07	TRUE
STAT3	0.00e+00	8.0e-07	FALSE
NFKBIA	0.00e+00	8.0e-07	FALSE
TNFRSF14	0.00e+00	8.0e-07	FALSE
IRF1	0.00e+00	8.0e-07	TRUE
SMAD4	1.12e-05	8.0e-07	TRUE
ETV7	1.00e-07	2.4e-06	FALSE

We see that roughly half of the positive control perturbations passing the 1e-5 p-value threshold did not survive Mixscape, suggesting that Mixscape is too aggressive in labeling perturbations as having no effect.