

Nonmonotonic__at__100%_RpoS

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Genes Whose Expression Pattern Differs at Wild Type (rssB present)

We ask what genes are differentially expressed between 48.37% and 100% as well as 100% and 129.96%. Of these, we want to know which go down at 100% but back up again at 129.96% as well as which go up at 100% but down again at 129.96%. These are genes whose expression pattern appears different at rssB's presence. However, monotonicity is a struggle throughout the data set, and non-monotonicity at 100% may not be indicative of anything interesting going on.

We take the genes that are differentially expressed across 48.37% and 100% as well as between 100% and 129.96%, adjusting for the two comparisons using the Bonferroni adjustment. Of these, we find the over 1000 genes which are not monotonic across these three levels and write them up to a table.

Note that whether or not these genes are regulated by RpoS, they may be influenced by the presence of RpoS; this confounding variable keeps us from inferring causality regarding the rssB deletion.

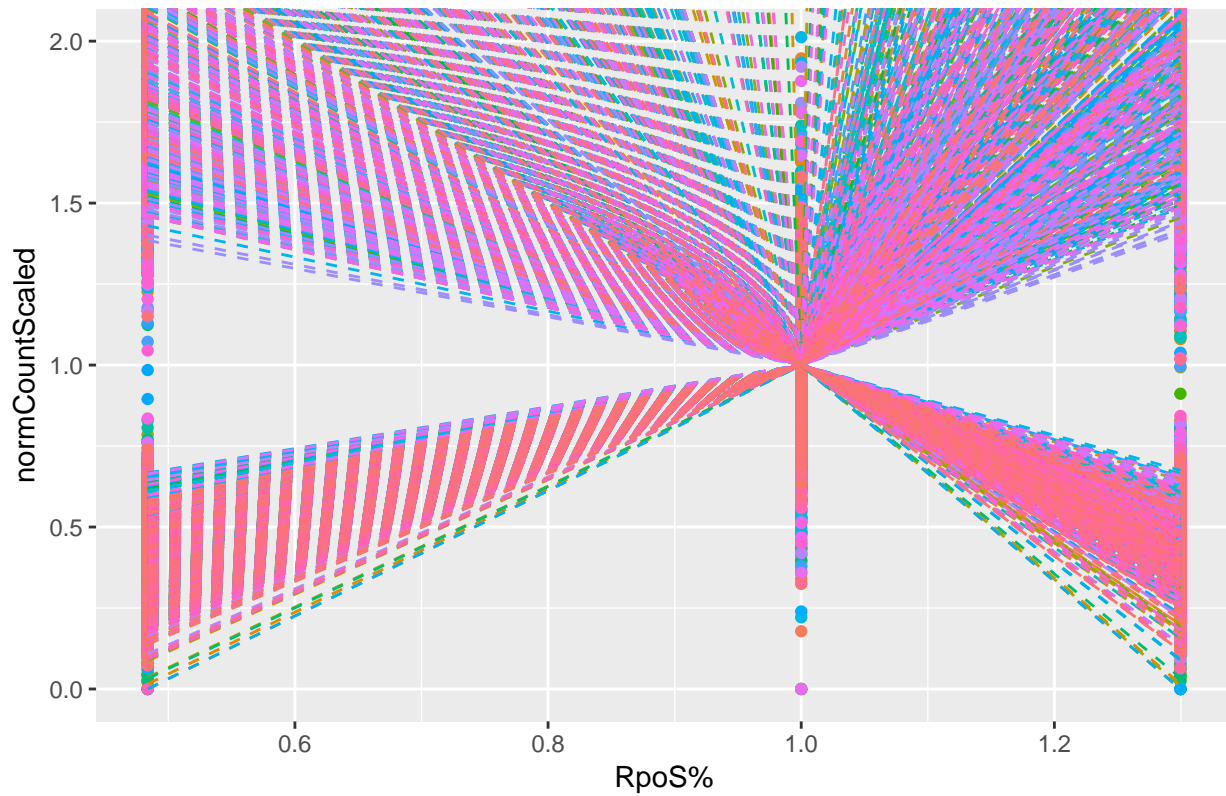
100% vs 129.96% :

```
##
## out of 13386 with nonzero total read count
## adjusted p-value < 0.05
## LFC > 0 (up)      : 815, 6.1%
## LFC < 0 (down)    : 846, 6.3%
## outliers [1]      : 1, 0.0075%
## low counts [2]    : 6470, 48%
## (mean count < 8)
## [1] see 'cooksCutoff' argument of ?results
## [2] see 'independentFiltering' argument of ?results
```

48.37% vs 100% :

```
##
## out of 13401 with nonzero total read count
## adjusted p-value < 0.05
## LFC > 0 (up)      : 992, 7.4%
## LFC < 0 (down)    : 1128, 8.4%
## outliers [1]      : 4, 0.03%
## low counts [2]    : 5700, 43%
## (mean count < 6)
## [1] see 'cooksCutoff' argument of ?results
## [2] see 'independentFiltering' argument of ?results
```

1472 genes whose expression changes significantly ($FDR_p < 0.05/2$) at 100%



We see the plot above where genes which are differentially expressed between 48.37% and 100% as well as between 100% and 129.96% and which are not monotonic at across the three levels.