

**Table S3. USeq program parameters**

| USeq                |      |         |   |
|---------------------|------|---------|---|
| Script              | Name | Value   | Description   |
| PeakShiftFinder     | -w   | 12      | window size   |
|                     | -d   | 8       | minimum normalized window score   |
| ScanSeqs            | -p   | 75      | peak shift, average distance between + and – strand peaks                                   |
|                     | -w   | 589     | window size   |
|                     | -f   | na      | filter windows with high control read count   |
|                     | -g   | 4       | standard deviations off median of control read count (wrong)                                |
|                     | -i   | 1,2,4   | score indices, QValFDR, EmpFDR, and Log2Ratio   |
| EnrichedRegionMaker | -s   | 20,13,1 | thresholds for scores, $-10\log_{10}(\text{FDR}/\text{p-val})$ where 13 = 5%, 20 = 1%, etc. |

This table shows the parameters that were used when running USeq. Default parameters were used for all other values.