**Supplementary file 2.** Details of flux calculator (Galburt, 2018) calculations.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| constants | inhibited promoter | activated promoter |  | inhibited promoter | activated promoter |
| Galburt (2018) nomenclature | current nomenclature | basal = WT-RNAP reg = 1.170-RNAP(Figure 4 - figure supplement 1C) |  | basal = no TraRreg = TraR(Figure 8) |
| kbasalon (nM-1s-1) | kbasal2 (s-1) | 1 | 0.1 |  | 1 | 0.1 |
| kregon (s-1) | kreg2 (s-1) | 1 | 0.1 |  | 5 | 0.5 |
| kbasal/kreg | 1 | 1 |  | 5 | 5 |
|  |  |  |  |  |  |  |
| kbasaloff (s-1) | kbasal-2 (s-1) | 10 | 1 |  | 10 | 1 |
| kregoff (s-1) | kreg-2 (s-1) | 10 | 1 |  | 10 | 1 |
| kbasal/kreg | 1 | 1 |  | 1 | 1 |
|  |  |  |  |  |  |  |
| kbasalopen (s-1) | kbasal3 (s-1) | 1 | 0.1 |  | 1 | 0.1 |
| kregopen (s-1) | kreg3 (s-1) | 25 | 1 |  | 10 | 1 |
| kbasal/kreg | 25 | 10 |  | 10 | 10 |
|  |  |  |  |  |  |  |
| kbasalclose (s-1) | kbasal-3 (s-1) | 50 | 0.05 |  | 50 | 0.05 |
| kregclose (s-1) | kreg-3 (s-1) | 1300 | 1.3 |  | 2500 | 2.5 |
| kbasal/kreg | 26 | 26 |  | 50 | 50 |
|  |  |  |  |  |  |  |
| kbasalesc (s-1) | kbasal4 (s-1) | 5 | 5 |  | 5 | 5 |
| kregesc (s-1) | kreg4 (s-1) | 5 | 5 |  | 5 | 5 |
| kbasal/kreg | 1 | 1 |  | 1 | 1 |
|  |  |  |  |  |  |
| fluxbasal (min-1) | 5.3 | 5.8 |  | 5.3 | 5.8 |
| fluxreg (min-1) | 5.6 | 83 |  | 1.2 | 35 |
| flux ratio (basal/reg) | 1.06 | 14.3 |  | 0.23 | 6.0 |