**Supplementary file 2. Estimated parameters of transcription for *Oct4* and *Nanog*.**

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| **A. Parameters of transcription for *Oct4* and *Nanog* estimated from the stochastic model.** | | |
| **Parameter** | ***Oct4*** | ***Nanog*** |
| Gene activation rate  (*k*ON) | 9.2×10-3±1.4×10-3 min-1 | 1.9×10-3±0.1×10-3 min-1 |
| Gene inactivation rate  (*k*OFF) | 1.8×10-2±0.6×10-2 min-1 | 6.9×10-3±0.5×10-3 min-1 |
| Transcription initiation rate  (*k*INI) | 1.9±0.3 min-1 | 0.8±0.1 min-1 |
| Nascent mRNA residence time  (τRES) | 3.5±0.7 min | 7.7±1.7 min |
| Fold change in nascent mRNA per gene copy  (*η*) | 0.72±0.05 | 0.76±0.06 |
| Fold change in gene activation rate per gene copy  (*α*) | 0.63±0.06 | 0.71±0.06 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **B. Quantities estimated from transcription parameters for *Oct4* and *Nanog* before and after gene replication.** | | | | | | | | | |
| **Quantity**  **per gene copy** |  | **Expression used** | |  | ***Oct4*** | |  | ***Nanog*** | |
|  | **before** | **after** |  | **before** | **after** |  | **before** | **after** |
| Mean “ON” duration |  |  |  |  | 56±19 min | 56±19 min |  | 144±11 min | 144±11 min |
| Mean “OFF” duration |  |  |  |  | 108±17 min | 173±31 min |  | 534±28 min | 750±75 min |
| Fraction of time “ON” |  |  |  |  | 0.34±0.08 | 0.24±0.05 |  | 0.22±0.02 | 0.16±0.01 |
| Mean number of mRNA produced during an “ON” period |  |  |  |  | 106±39 | 106±39 |  | 123±17 | 123±17 |