Individual diffusion constants estimated per cell, chosen according to their stage in the cell cycle. Coordinates of the plasmid were tracked every 5 seconds in ImageJ. For each cell, a distribution of 5-second jump sizes was calculated in a 2D plane. Assuming Brownian motion, we have that the diffusion coefficient, $D$, is then given by: $$D = \frac{\langle x^2 \rangle}{2d\Delta t},$$ where $\langle x^2 \rangle$ is the average jump size, $\Delta t$ is the time interval (5 seconds) and $d$ is the dimensionality (2, since we only track the movement in a plane). Particle jumps near nuclear membranes were ignored, since the input for simulations should be a free diffusion coefficient. This leads to the following diffusion coefficients, all in $\mu m^2 / s$.

| Interphase | Anaphase |
|------------|----------|
| 0.0016     | 0.0035   |
| 0.0023     | 0.0036   |
| 0.0035     | 0.0020   |
| 0.0022     | 0.0010   |
| 0.0043     | 0.0032   |
| 0.0014     | 0.0040   |
| 0.0026     | 0.0027   |
| 0.0029     | 0.0034   |
| 0.0028     | 0.0025   |
| 0.0021     | 0.0026   |
| 0.0022     | 0.0031   |
| 0.0027     | 0.0022   |
| 0.0022     | 0.0024   |
| 0.0020     | 0.0043   |
| 0.0016     | 0.0022   |
| 0.0016     | 0.0045   |
| 0.0026     | 0.0046   |
| 0.0022     | 0.0026   |
| 0.0017     | 0.0037   |
| 0.0030     | 0.0037   |
| 0.0029     | 0.0023   |
| 0.0043     | 0.0024   |
| 0.0031     | 0.0037   |
| 0.0028     | 0.0031   |

The average of all such cells is 0.0027 $\mu m^2 / s$. The average of interphase cells is 0.0025 $\mu m^2 / s$; the average of anaphase cells is 0.0031 $\mu m^2 / s$. 