**Table S1**

**Median relative kDNA intensity values**

***PLK* RNAi cells**

| Sample | Cell type | Relative median kDNA intensity |
|---|---|---|
| - tet | 1N1K | 1.20 |
| | 1N2Kc | 2.17 |
| | 1N2Ks | 1.00 |
| t = 22 hrs + tet | 1N1K | 1.22 |
| | 1N2Kc | 2.06 |
| | 2N1K | 1.31 |
| | 1N2Ks | 1.00 |
| t = 30 hrs + tet | 1N1K | 2.05 |
| | 1N2Kc | 2.03 |
| | 2N1K | 2.05 |
| | >2N1K | 2.98 |
| | 1N2Ks | 1.00 |

**PLKty overexpressing cells**

| Sample | Cell type | Relative median kDNA intensity |
|---|---|---|
| - tet | 1N1K | 1.25 |
| | 1N2Kc | 1.78 |
| | 1N2Ks | 1.00 |
| t = 14.5 hrs + tet | 1N1K | 1.08 |
| | 1N2Kc | 2.06 |
| | 2N1K | 1.69 |
| | 1N2Ks | 1.00 |
| t = 18 hrs + tet | 1N1K | 1.75 |
| | 1N2Kc | 1.93 |
| | 2N1K | 2.43 |
| | 1N2Ks | 1.00 |

**Table S2**

Changes in sequence of *PLK* from MiTat221 compared to the genome strain TREU 927 GUTat 10.1.

| Base | TREU 927 GUTat.10.1 | MiTat221 | Mutation |
|------|---------------------|----------|----------|
| 960 | G | A | Silent |
| 1245 | CAA CAA CAA CAA CAA | Deleted | Deletion of NNNNN |
| 1282 | AAC AAC AAC AAC | GCC ATA AAC CCC | NNNN to AINP |
| 1344 | A | G | Silent |
| 1438 | G | A | V to A |
| 1485 | T | C | Silent |
| 1515 | T | A | Silent |
| 1582 | C | G | P to A |
| 1830 | T | C | Silent |
| 2025 | C | T | Silent |
| 2142 | A | G | silent |

**Figure S1 - Abnormal cells for bloodstream form *PLK* RNAi cell lines**

Clone 7 — t=6 hrs + tet — total cells counted = 514, total abnormal cells = 87 (16.9%), of which 30 (5.8%) were unclassifiable

| number of nuclei \ number of kinetoplasts | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| 0 |  | 3 | 1 |  |  |  |  |
| 1 | 9 |  |  |  |  |  |  |
| 2 | 3 | 2 |  | 7 | 7 |  | 1 |
| 3 |  |  | 3 | 4 | 3 |  |  |
| 4 | 2 |  |  |  | 11 | 1 |  |
| 5 |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |

Clone 7 — t=8 hrs + tet — total cells counted = 488, total abnormal cells = 146 (29.9%), of which 47 (9.6%) were unclassifiable

| number of nuclei \ number of kinetoplasts | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| 0 |  | 6 | 2 |  |  |  |  |
| 1 |  |  |  |  |  |  |  |
| 2 | 3 | 29 |  | 10 | 7 |  |  |
| 3 |  | 1 | 5 | 2 | 5 | 1 |  |
| 4 |  |  | 3 | 8 | 15 |  | 1 |
| 5 |  |  |  |  | 1 |  |  |
| 6 |  |  |  |  |  |  |  |

Clone 7 — t=10 hrs + tet — total cells counted = 409, total abnormal cells = 208 (50.9%), of which 54 (13.2%) were unclassifiable

| number of nuclei \ number of kinetoplasts | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| 0 |  | 6 | 1 |  |  |  |  |
| 1 | 3 |  |  | 2 |  |  |  |
| 2 | 2 | 31 |  | 23 | 8 |  |  |
| 3 |  | 1 | 11 | 16 | 2 |  |  |
| 4 | 2 | 3 | 5 | 16 | 15 |  |  |
| 5 |  |  | 1 | 3 | 2 |  |  |
| 6 |  |  |  |  |  |  |  |
| 7 |  |  |  | 1 |  |  |  |

Clone 15  t=6 hrs + tet  total cells counted = 412, total abnormal cells = 80 (19.4%), of which 48 (11.7%) were unclassifiable

| number of nuclei | number of kinetoplasts | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 0 | | 2 | | | | | |
| 1 | 2 | | | 1 | | | |
| 2 | | 7 | | 5 | 10 | | |
| 3 | | | 1 | 2 | 1 | | |
| 4 | | | | 1 | 1 | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

Clone 15  t=8 hrs + tet  total cells counted = 417, total abnormal cells = 133 (31.9%), of which 86 (20.6%) were unclassifiable

| number of nuclei | number of kinetoplasts | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 0 | | | | | | | |
| 1 | 5 | | | | | | |
| 2 | | 15 | | 6 | 3 | | |
| 3 | | | 2 | 8 | 4 | | |
| 4 | | | | 1 | 3 | | |
| 5 | | | | | | | |
| 6 | | | | | | | |