**Movie EV1 in support of Figure 1**

Example of cells analyzed in Figure EV1C. Cells carry *tub2-401* mutation and GFP-tagged chromosome V. They are arrested in G1 at 18 ˚C, and released in microfluidic chamber while acquired every hour for 41 hours. From left to right, the first cell has two GFP dots after ~12 hours, and then rebuds. It thus belongs to the 'missegregation' group. The second cell correctly segregates chrV-GFP, as one dot appears in each of the two daughter cells at ~14h, then they rebud. It thus belongs to the 'correct segregation' group. The third rebuds before showing two dots. It belongs to the 'missegregation' group. The last dies before rebudding, and thus belongs to the 'death' group.