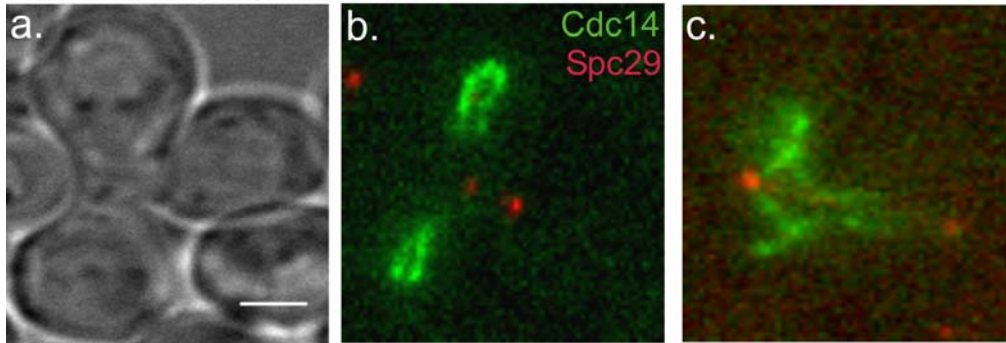
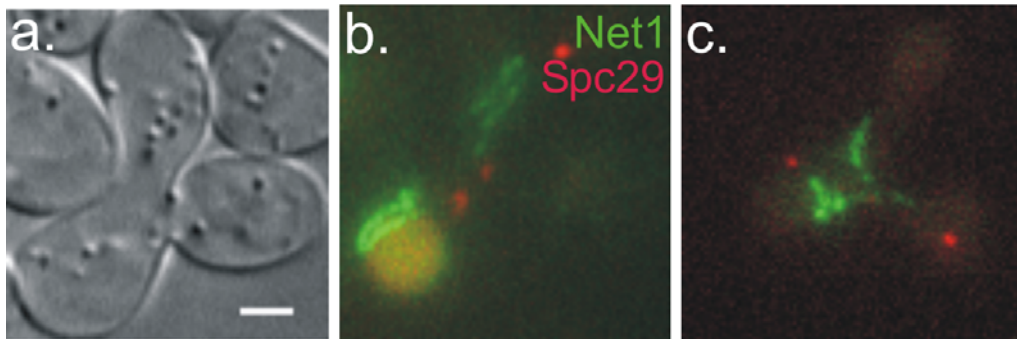


Supplementary Material

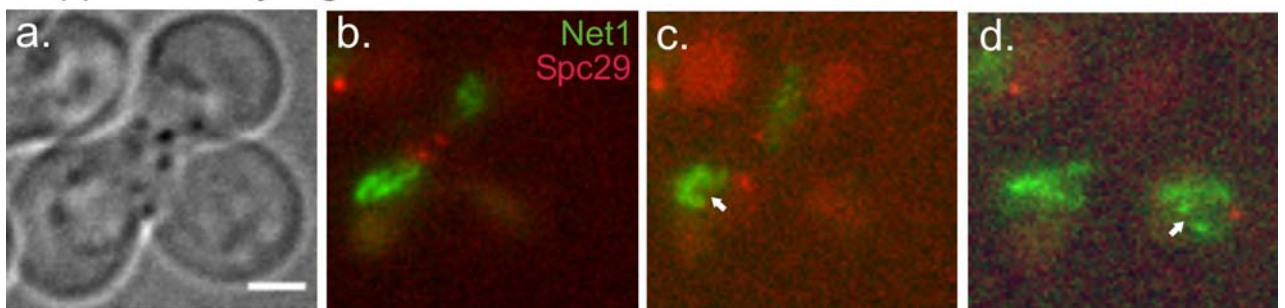
Supplementary Fig. 1



Supplementary Fig. 2



Supplementary Fig. 3



Supplementary Figure 1: rDNA Segregation Trajectory in Mating Cells tracked using CDC14-GFP (rDNA) and SPC29-RFP (spindle poles). (a) Trans image of zygote. (b) Metaphase with CDC14 in green and SPC29 in red. (c) Anaphase. Scale bar in (a) represents 2 microns.

Supplementary Figure 2: rDNA Segregation Trajectory in Mating Cells tracked using Net1-GFP. (a) Trans image of zygote. (b) Metaphase with NET1 in green and SPC29 in red. (c) Anaphase. Scale bar in (a) represents 2 microns.

Supplementary Figure 3: Tracking a single strand of Net1 fluorescence through mitosis. A single strand of Net1-GFP was marked by bleaching a section. (b) shows the strand pre-bleach and the arrow head in (c) points to the bleached region. After anaphase, the bleached region is found on one strand in the daughter cell (d, arrow) and not on either strand in the mother cell (n = 8). The scale bar in (a) represents 2 μm .

| Probe | Genotype | Distance Between Strands | % Separated in Metaphase | n | Rest Length (Metaphase) | Compaction Ratio | n |
|----------|----------|--------------------------|--------------------------|----|-------------------------|------------------|----|
| | | μm | | | μm | times B-form | |
| Net1-GFP | SGO1 | 0.40+/-0.12 | 85% | 13 | 2.04 +/- 0.50 | 250X | 24 |

Supplementary Table 1: Fluorescent strand dimensions in the first metaphase after mating using NET1-GFP. Values are not statistically different than values using CDC14-GFP.

| Probe | Genotype | Maximum Extension (Anaphase) | | Fold Extension | | Compaction Ratio | | n |
|----------|----------|------------------------------|---------------|--------------------------------|--------------------------------|------------------|--------------|---------|
| | | Mother | Daughter | Mother | Daughter | Mother | Daughter | |
| | | μm | μm | Max. Extension/ Rest Length | Max. Extension/ Rest Length | times B-form | times B-form | of each |
| Net1-GFP | SGO1 | 3.38 +/- 0.76 | 4.12 +/- 0.85 | 1.41 | 2.13 | 151X | 124X | 12 |

Supplementary Table 2: Fluorescent strand dimension in the first anaphase after mating using NET1-GFP. Values are not statistically different than values using CDC14-GFP.

Supplementary Movie 1: Metaphase and Anaphase of a SGO1 zygote. Images in the movie were taken at one minute intervals. The bright foci in the middle of the zygote represent the kinetochore clusters (NUF2-GFP). The fluorescent signal above and below the NUF2-GFP foci are the rDNA arrays marked with CDC14-GFP.

Supplementary Movie 2: Metaphase and anaphase of a *sgo1Δ* zygote. Images in the movie were taken at one minute intervals. Red foci represent the spindle poles marked by SPC29-RFP. The green fluorescence is the rDNA array marked with CDC14-GFP.