Supplementary data

Alp7-Mto1 and Alp14 synergize to promote interphase microtubule regrowth from the nuclear envelope

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Supplementary data includes five supplemental figures and two supplemental tables:

Supplementary Figures:

Figure S1

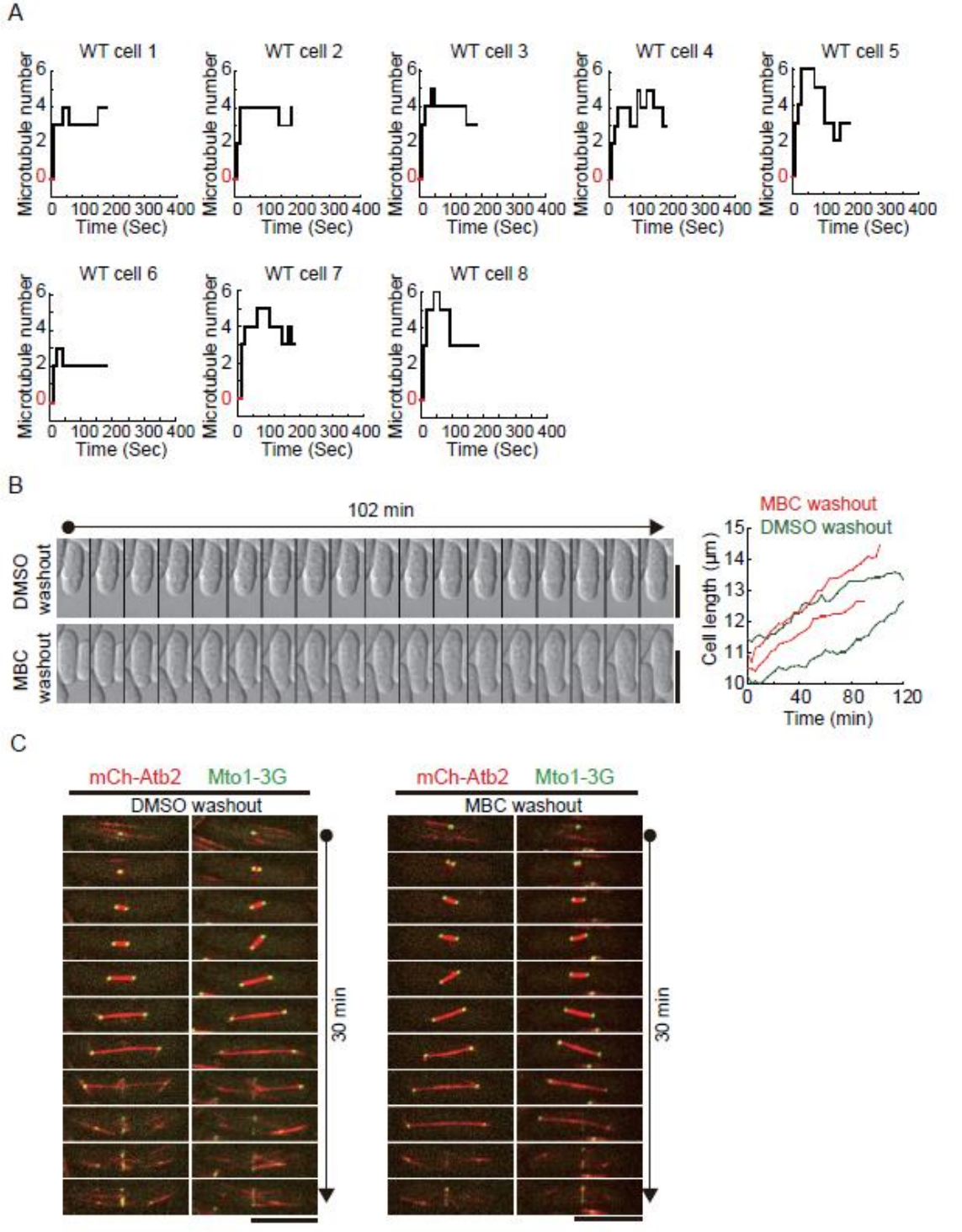

Figure S1. (A) Step plots of microtubule number against time after MBC washout for wild type cells (related to Figure 1F). (B) Time-lapse DIC (Differential interference contrast) images taken

after MBC or DMSO (control) washout. On the right are plots of cell length against time. Note that MBC treatment did not appear to affect cell growth after the removal of the drug. (C) Maximum projection time-lapse images of cells expressing Mto1-3GFP and mCherry-Atb2. Images were acquired after MBC or DMSO washout. Note that mitosis progression was comparable in cells after the removal of DMSO or MBC.

Figure S2

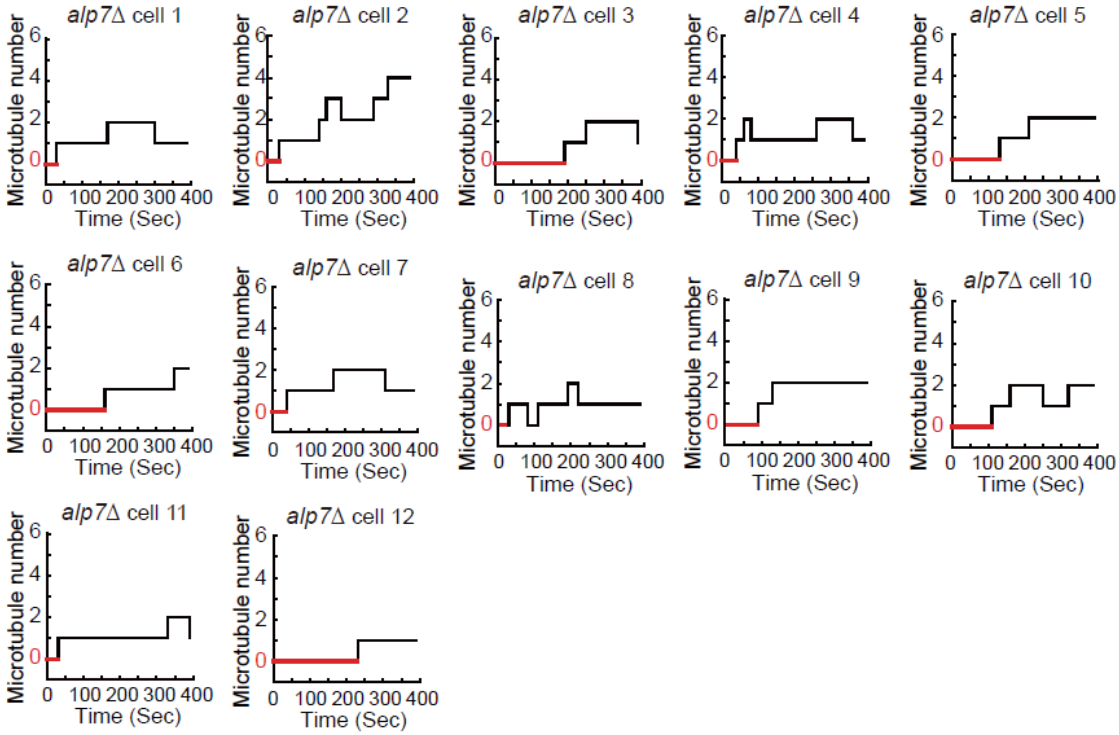

Figure S2. Step plots of microtubule number against time after MBC washout for *alp7Δ* cells (related to Figure 3E).

Figure S3

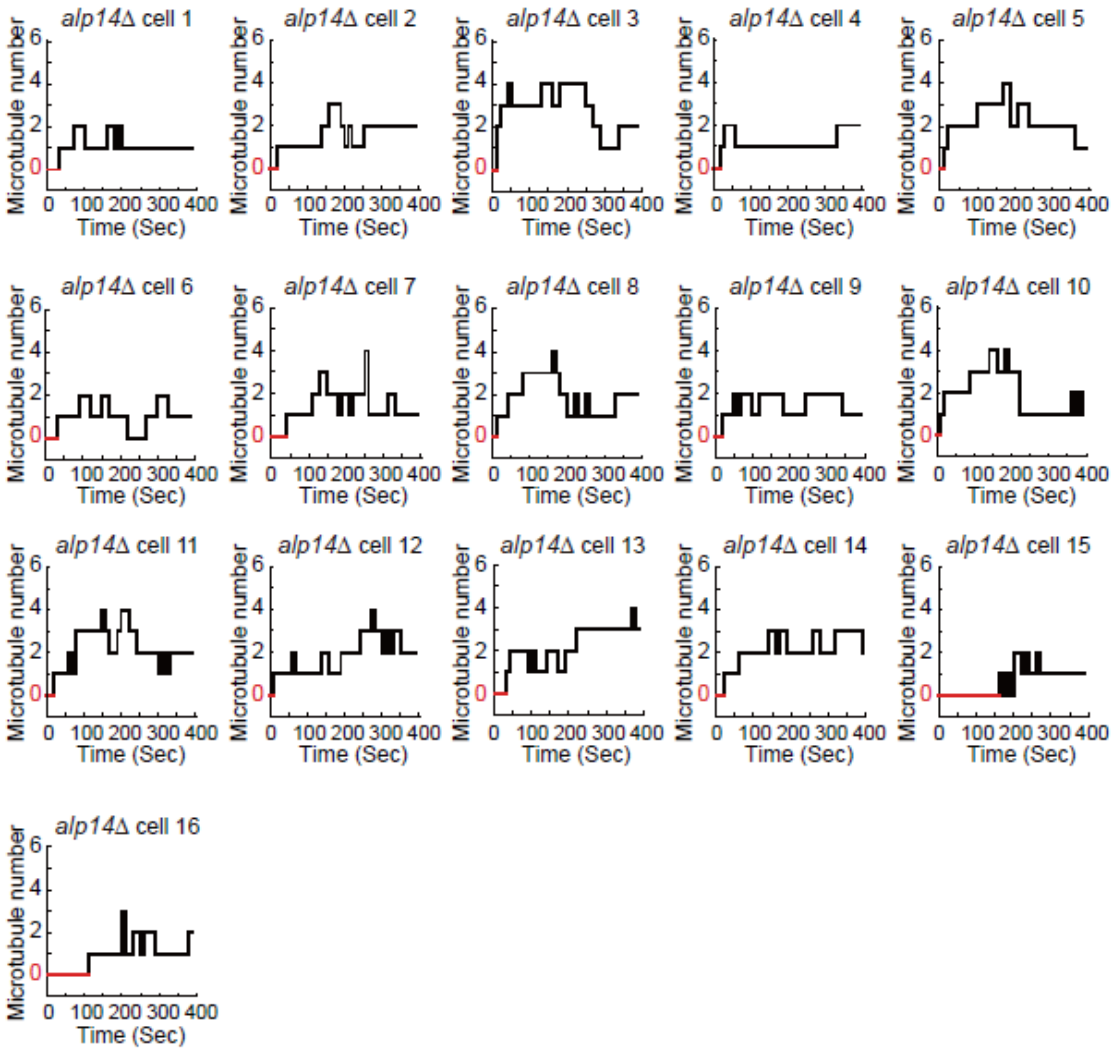

Figure S3. Step plots of microtubule number against time after MBC washout for *alp14Δ* cells (related to Figure 3F).

Figure S4

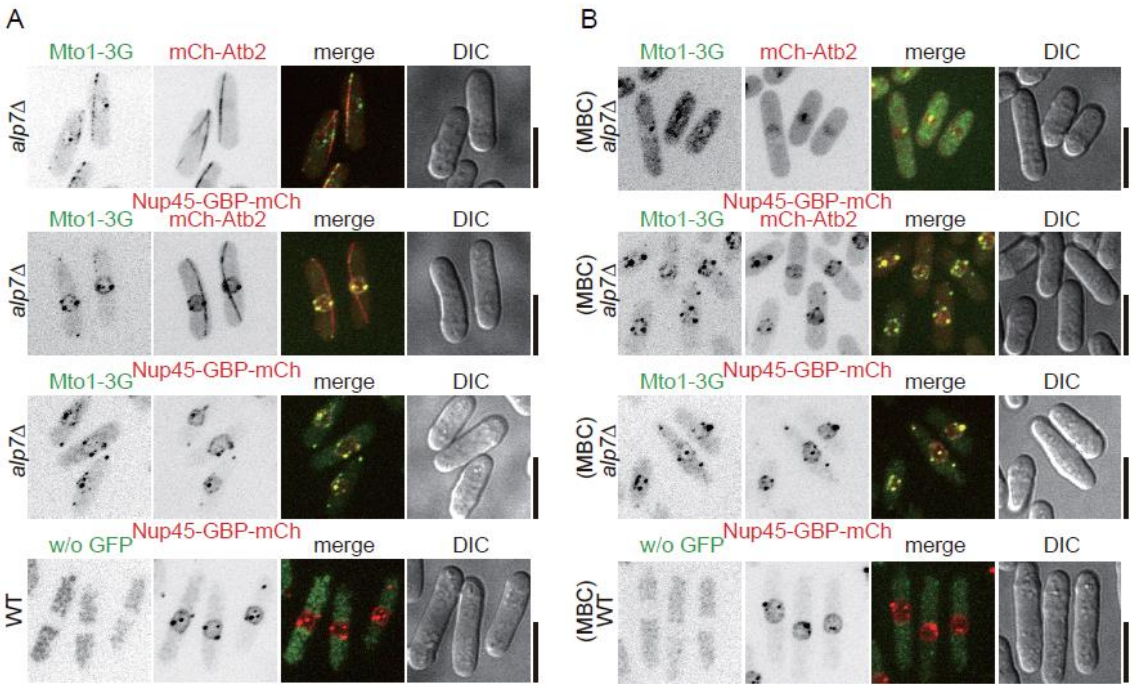

Figure S4. Tethering Mto1-3GFP to the nuclear envelope by GBP tagged Nup45 (related to Figures 5A and 5B). (A) Maximum projection images of WT and *alp7Δ* cells expressing the indicated fluorescently tagged proteins. The WT cells expressed only Nup45-GBP-mCherry. Note that Nup45-GBP-mCherry decorated the NE on which a few Nup45-GBP-mCherry foci were present. Scale bar, 10 μm. (B) Maximum projection images of the indicated cells in (A) treated with MBC. Scale bar, 10 μm.

Figure S5

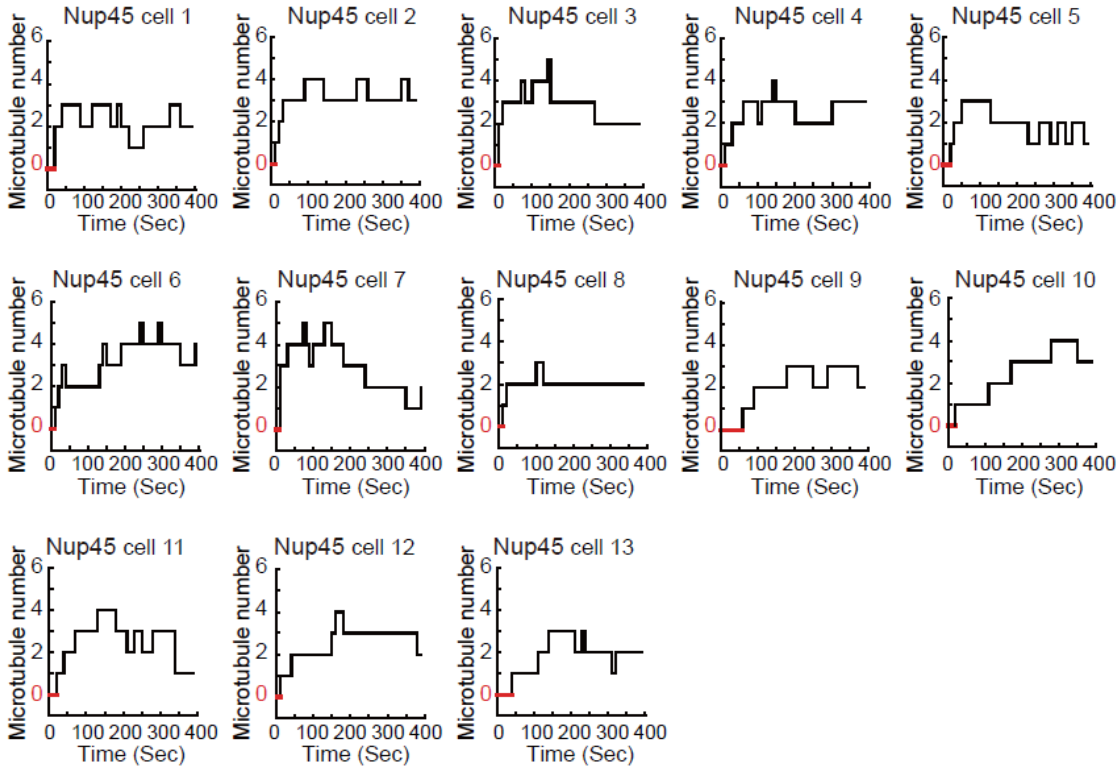

Figure S5. Step plots of microtubule number against time after MBC washout for *alp7Δ* Nup45-GBP-mCherry cells (related to Figure 5G).

Supplementary Tables

Table S1. Yeast strains

Strain	Genotype	Source
Figure 1		
CF.4250	mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	Lab stock
CF.4844	mto1-3GFP:KanR cut11-RFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
Figure 2		
CF.4250	mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	Lab stock
CF.4844	mto1-3GFP:KanR cut11-RFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.5150	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-	This study

	32 ura4-D18 h-	
CF.4845	alp7Δ: Ura4+ mto1-3GFP:KanR cut11-RFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h?	This study
CF.6374	alp14Δ:NatR mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6376	alp14Δ:NatR mto1-3GFP:KanR cut11-RFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.5155	mto1-13Myc:NatR alp7-3GFP:KanR ade6-m210 leu1-32 ura4-D18 h?	This study
CF.5991	mto1-13Myc:NatR rga1-3GFP:KanR ade6-m210 leu1-32 ura4-D18 h?	This study
CF.5991	mto1-13Myc:NatR rga1-3GFP:KanR ade6-m210 leu1-32 ura4-D18 h?	This study
CF.4849	mto1-3GFP:KanR sid4-tdTomato:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.4850	alp7Δ:Ura4+ mto1-3GFP:KanR sid4-tdTomato:HygR ade6-m210 leu1-32 ura4-D18 h?	This study
CF.6380	alp14Δ: NatR mto1-3GFP:KanR sid4-tdTomato:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
Figure 3		
CF.5150	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6374	alp14Δ:NatR mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
Figure 4		
CF.1246	alp7-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	Lab stock
CF.6147	alp14-GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6457	alp14Δ:NatR alp7-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6461	alp7Δ: Ura4+ alp14-GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
Figure 5		
CF.5150	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.5799	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR Leu1-32:ase1P*-nup45-GBP ade6-m210 leu1-32 ura4-D18 h+	This study
CF.5801	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR Leu1-32:ase1P*-nup45-GBP-mCherry ade6-m210 leu1-32 ura4-D18 h-	This study
Figure 6		
CF.4848	mto1Δ: Ura4+ mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.4847	mto1Δ: Ura4+ alp7-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.6909	mto1Δ: Ura4+ alp14-GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h+	This study
CF.1246	alp7-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	Lab stock
CF.6147	alp14-GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6457	alp14Δ:NatR alp7-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.6461	alp7Δ: Ura4+ alp14-GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study

Figure S1		
CF.4250	mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	Lab stock
Figure S2		
CF.5150	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
Figure S3		
CF.6374	alp14Δ:NatR mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
Figure S4		
CF.5150	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR ade6-m210 leu1-32 ura4-D18 h-	This study
CF.5801	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR Leu1-32:ase1P*-nup45-GBP-mCherry ade6-m210 leu1-32 ura4-D18 h-	This study
CF.5995	alp7Δ: Ura4+ mto1-3GFP:KanR Leu1-32:ase1P*-nup45-GBP-mCherry ade6-m210 leu1-32 ura4-D18 h?	This study
CF.5800	Leu1-32:ase1P*-nup45-GBP-mCherry ade6-m210 leu1-32 ura4-D18 h-	This study
Figure S5		
CF.5799	alp7Δ: Ura4+ mto1-3GFP:KanR mCherry-atb2:HygR Leu1-32:ase1P*-nup45-GBP ade6-m210 leu1-32 ura4-D18 h+	This study

Table S2. Plasmids

Plasmid	Genotype	Source
Figure 2		
pCF.2438	pET-22b-MBP-alp7	This study
pCF.2439	pET-22b-MBP	Lab stock
Figure 5		
pCF.2806	pJK148-ase1P*-nup45-GBP	This study
pCF.2807	pJK148-ase1P*-nup45-GBP-mCherry	This study
Figure S4		
pCF.2807	pJK148-ase1P*-nup45-GBP-mCherry	This study
Figure S5		
pCF.2806	pJK148-ase1P*-nup45-GBP	This study