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Supporting Information

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**Rrm3 Protects the *Saccharomyces cerevisiae* Genome
From Instability at Nascent Sites of Retrotransposition**

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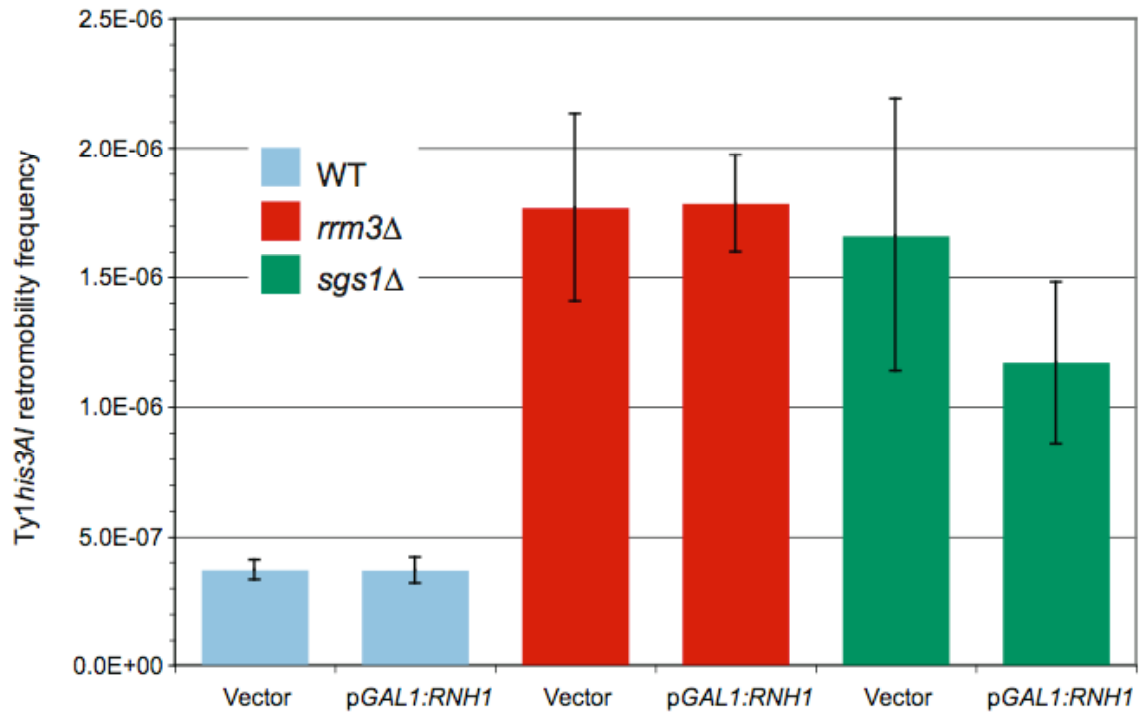


FIGURE S1.—Overexpression of RNase H does not effect the frequency of Ty1his3AI retromobility. Strains JC3212, JC3917 and JC4915 transformed with plasmid pRS416 or pGAL1:RNH1 were grown overnight in SC-Ura glucose broth at 30°. Cells were pelleted and resuspended in an equal volume of H₂O. Cells were diluted 1:100 into 4 ml SC-Ura galactose broth, divided into 4 cultures and grown to saturation at 20°. An equal volume of YPD broth was added to each culture, and the cultures were incubated for 18 to 20 hr at 20°. Aliquots of each culture were plated on SC-Ura and SC-Ura-His glucose agar. Plates were incubated for three days at 30° and the colonies were counted. The retromobility frequency is the average of the number of His⁺ Ura⁺ colonies divided by the total number of Ura⁺ colonies that retained the vector or pGAL1:RNH1 plasmid throughout incubation at 20°. The average of three experiments is presented. Error bars, standard error.

TABLE S1**Sequences flanking the 3' end of Ty1*HIS3* retromobility events**A. Ty1*HIS3* recombination events in *rrm3Δ* mutant

His ⁺ isolate	Chromosome	Coordinate	RNA pol III-transcribed gene within 825 bp	Other features of Ty1 <i>HIS3</i> junction
rrm3-26	Unknown	Unknown	Unknown	At LTR- <i>TYA1</i> boundary of a Ty1 element, in the same orientation
rrm3-76				
rrm3-87				
rrm3-91				
rrm3-105				
rrm3-106				
rrm3-128				
rrm3-136				
rrm3-139				
rrm3-148				

B. Ty1*HIS3* integration events in *rrm3Δ* mutant

rrm3-1	VII	661455	<i>tI(UGU)G1</i>	298 bp upstream of <i>tI(UGU)G</i> , same orientation
rrm3-2	III	142880	<i>SUF16</i>	In <i>YCRCdelta7</i> ; 111 bp upstream of <i>SUF16</i> , same orientation
rrm3-3	X	538434	<i>H SX1</i>	114 bp upstream of <i>H SX1</i> , same orientation
rrm3-4	IV	645389	<i>tQ(UUG)D2</i>	168 bp upstream of <i>tQ(UUG)D2</i> , same orientation
rrm3-5	XIII	589800	—	251 bp upstream of <i>MSS11</i> ORF; 293 bp downstream of <i>PAH1</i> ORF
rrm3-6	VII	287653	<i>tW(CCA)G1</i>	192 bp upstream of <i>tW(CCA)G1</i> , same orientation
rrm3-7	XII	489250	<i>RDN5-3, -5 or -6</i>	In <i>YLR156W, -159W</i> or <i>-161W</i> (identical uncharacterized ORFs); 100 bp upstream of <i>RDN5-3, -5 or -6</i> , opposite orientation
rrm3-8	XV	594514	<i>SUF5</i>	At 5' boundary of <i>YORWdelta12</i> , opposite orientation; 88 bp upstream of <i>SUF5</i> , same orientation
rrm3-9	XVI	776388	<i>tC(GCA)P2</i>	In <i>YPRWdelta14</i> ; 554 bp upstream of <i>tC(GCA)P2</i> , opposite orientation
rrm3-10	IV	645389	<i>tQ(UUG)D2</i>	168 bp upstream of <i>tQ(UUG)D2</i> , same orientation
rrm3-13	XI	379220	<i>tV(AAC)K2</i>	103 bp upstream of <i>tV(AAC)K2</i> , same orientation

				orientation
rrm3-14	XII	468334	<i>RDN5-2</i>	480 bp upstream of <i>RDN5-2</i> , same orientation
rrm3-15	VII	779527	<i>SUF4</i>	94 bp upstream of <i>SUF4</i> , opposite orientation
rrm3-18	II	9406	<i>tL(UUA)BI</i>	In <i>YBLWdelta2</i> ; 177 bp upstream of <i>tL(UUA)BI</i> , same orientation
rrm3-28	XVI	560830	<i>tF(GAA)PI</i>	544 bp upstream of <i>tF(GAA)PI</i> , opposite orientation
rrm3-35	XII	468450	<i>RDN5-2</i>	364 bp upstream of <i>RDN5-2</i> , same orientation
rrm3-38	XV	673755	—	1343 bp upstream of <i>SYCI</i> ORF; 598 bp downstream of <i>DCII</i> ORF
rrm3-39	VII	701357	<i>tK(UUU)G2</i>	305 bp upstream of <i>tK(UUU)G2</i> , opposite orientation
rrm3-73	Unknown	Unknown	Unknown	At +105 of Ty2 LTR, opposite orientation
rrm3-88	VII	701279	<i>tK(UUU)G2</i>	In <i>YGRWdelta19</i> ; 227 bp upstream of <i>tK(UUU)G2</i> , opposite orientation
rrm3-96	XVI	859967	<i>tG(GCC)P2</i>	408 bp upstream of <i>tG(GCC)P2</i> , same orientation
rrm3-97	Unknown	Unknown	Unknown	At +289 of Ty4 LTR, opposite orientation
rrm3-98	Unknown	Unknown	Unknown	At +177 of Ty1 LTR, opposite orientation
rrm3-99	X	234028	<i>tR(ACG)J</i>	21 bp downstream of <i>tR(ACG)J</i>
rrm3-101	II	401157	—	273 bp upstream of <i>SEC18</i> ORF; 90 bp downstream of <i>SPT7</i> ORF
rrm3-102	VII	931850	<i>tG(GCC)G2</i>	In <i>YGRWdelta32</i> ; 824 bp upstream of <i>tG(GCC)G2</i> , same orientation
rrm3-120	VII	701235	<i>tK(UUU)G2</i>	In <i>YGRWdelta19</i> ; 183 bp upstream of <i>tK(UUU)G2</i> , same orientation
rrm3-127	XIV	102518	<i>tN(GUU)NI</i>	In 5' LTR of <i>YNLCTy1-1</i> ; 198 bp upstream of <i>tN(GUU)NI</i> , same orientation
rrm3-129	XI	302193	<i>tW(CCA)K</i>	In <i>YKLCdelta5</i> ; 369 bp upstream of <i>tW(CCA)K</i> , same orientation
rrm3-130	XIV	570064	<i>tI(AAU)NI</i>	123 bp upstream of <i>tI(AAU)NI</i> , same orientation
rrm3-146	XVI	810499	<i>tN(GUU)P</i>	In 5' LTR of <i>YPRCTy1-2</i> ; 173 bp upstream of <i>tN(GUU)P</i> , same orientation

C. Ty1*HIS3* integration events in wild-type strain

wt-23	X	374758	<i>tR(UCU)J2</i>	186 bp upstream of <i>tR(UCU)J2</i> , opposite orientation
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wt-27	II	644957	<i>tE(UUC)B</i>	205 bp upstream of <i>tE(UUC)B</i> , opposite orientation
wt-29	XI	302481	<i>tW(CCA)K</i>	81 bp upstream of <i>tW(CCA)K</i> , opposite orientation
wt-30	Unknown	Unknown	Unknown	At +346 of Ty4 LTR, same orientation
wt-31	Unknown	Unknown	Unknown	At +150 of Ty1 LTR, same orientation
wt-33	VII	74252	<i>tV(AAC)G3</i>	351 bp upstream of <i>tV(AAC)G3</i> , opposite orientation
wt-34	XII	489250	<i>RDN5-3, -5 or -6</i>	In <i>YLR156W</i> , <i>-159W</i> or <i>-161W</i> ; 100 bp upstream of <i>RDN5-3, -5 or -6</i> , opposite orientation
wt-36	IV	803215	<i>tQ(UUG)D3</i>	In <i>YDRWdelta11</i> ; 416 bp upstream of <i>tQ(UUG)D3</i> , opposite orientation
wt-37	XI	74360	<i>tN(GUU)K</i>	In <i>YKLWdelta1</i> ; 269 bp upstream of <i>tN(GUU)K</i> , same orientation
wt-38	V	441821	<i>SCR1</i>	In <i>YER137C</i> , uncharacterized ORF; 162 bp upstream of <i>SCR1</i> , opposite orientation
wt-42	Unknown	Unknown	Unknown	At +169 of Ty4 LTR, opposite orientation
wt-44	V	138480	<i>tR(UCU)E</i>	In <i>YELWdelta6</i> ; 186 bp upstream of <i>tR(UCU)E</i> , same orientation
wt-46	IV	1151138	<i>tX(XXX)D</i>	In <i>YDRWdelta25</i> ; in <i>YDR340W</i> , dubious ORF; 203 bp upstream of <i>tX(XXX)D</i> , same orientation
wt-54	II	750025	—	At +436 in <i>CHK1</i> ORF, same orientation
wt-56	XIII	168360	<i>SUP5</i>	435 bp upstream of <i>SUP5</i> , opposite orientation
