

## SUPPLEMENTARY DATA

Table I. Localization of lac<sup>OP</sup>-tagged loci

	G1 phase				S phase			
	% in zone 1	n	p value t-test	p value $\chi^2$	% in zone 1	n	p value t-test	p value $\chi^2$
Tel 6R <sup>nat</sup>	59.1	110	1.3×10 <sup>-4</sup>	6.2×10 <sup>-8</sup>	55.6	135	2.4×10 <sup>-4</sup>	1.4×10 <sup>-7</sup>
Tel 14L <sup>nat</sup>	52.9	257	7.4×10 <sup>-6</sup>	8.1×10 <sup>-11</sup>	58.2	153	1.3×10 <sup>-5</sup>	6.0×10 <sup>-10</sup>
Tel 7L <sup>nat</sup>	57.3	391	1.7×10 <sup>-11</sup>	8.1×10 <sup>-25</sup>	58.2	165	5.9×10 <sup>-6</sup>	9.9×10 <sup>-11</sup>
Tel 8L <sup>nat</sup>	46.2	262	2.6×10 <sup>-3</sup>	2.6×10 <sup>-5</sup>	42.5	120	<b>8.3×10<sup>-2</sup></b>	3.8×10 <sup>-2</sup>
Tel 5R <sup>nat</sup>	38.6	272	<b>0.2</b>	<b>5.4×10<sup>-2</sup></b>	64.8	91	2.1×10 <sup>-5</sup>	7.7×10 <sup>-34</sup>
Tel 6R <sup>tr</sup>	52.4	431	1.5×10 <sup>-8</sup>	6.4×10 <sup>-17</sup>	58.5	195	6.4×10 <sup>-7</sup>	5.6×10 <sup>-14</sup>
Tel 8L <sup>tr</sup>	45.6	333	1.2×10 <sup>-3</sup>	2.6×10 <sup>-7</sup>	47.7	134	1.6×10 <sup>-2</sup>	1.3×10 <sup>-4</sup>
Tel 5R <sup>tr</sup>	50.7	276	3.5×10 <sup>-5</sup>	4.3×10 <sup>-10</sup>	56.3	112	1.8×10 <sup>-6</sup>	1.3×10 <sup>-4</sup>
Tel 6R <sup>nat</sup> <i>ku70Δ</i>	30	223	<b>0.5</b>	<b>0.4</b>	36.2	174	<b>0.6</b>	<b>0.7</b>
Tel 6R <sup>tr</sup> <i>ku70Δ</i>	46.7	227	3.7×10 <sup>-3</sup>	7.3×10 <sup>-4</sup>	58.8	131	3.6×10 <sup>-5</sup>	1.2×10 <sup>-9</sup>
Tel 8L <sup>nat</sup> <i>ku70Δ</i>	33.8	207	<b>0.9</b>	<b>0.5</b>	43.6	94	<b>0.1</b>	<b>5.6×10<sup>-2</sup></b>
Tel 8L <sup>tr</sup> <i>ku70Δ</i>	53.3	214	7.1×10 <sup>-5</sup>	1.1×10 <sup>-8</sup>	55.2	67	1.1×10 <sup>-2</sup>	3.6×10 <sup>-4</sup>
Tel 5R <sup>nat</sup> <i>ku70Δ</i>	38.7	284	<b>0.2</b>	5.1×10 <sup>-3</sup>	41.3	126	<b>0.2</b>	<b>0.1</b>
Tel 5R <sup>tr</sup> <i>ku70Δ</i>	45.9	231	5.8×10 <sup>-3</sup>	8.1×10 <sup>-6</sup>	57.6	118	1.8×10 <sup>-4</sup>	6.3×10 <sup>-8</sup>
Tel 6R <sup>tr</sup> + pAT4	57	351	3.1×10 <sup>-10</sup>	1.1×10 <sup>-20</sup>	54.3	105	6.4×10 <sup>-4</sup>	3.0×10 <sup>-5</sup>
Tel 6R <sup>tr</sup> + pReb1N	56.9	239	2.3×10 <sup>-7</sup>	9.1×10 <sup>-14</sup>	50.9	53	<b>6.6×10<sup>-2</sup></b>	1.0×10 <sup>-2</sup>
Tel 6R <sup>tr</sup> + pTbf1N	46.8	314	5.7×10 <sup>-4</sup>	2.5×10 <sup>-6</sup>	50.6	81	2.6×10 <sup>-2</sup>	1.7×10 <sup>-3</sup>
Tel 6R <sup>tr</sup> <i>ku70Δ</i> + pAT4	47.4	133	2.0×10 <sup>-2</sup>	2.7×10 <sup>-3</sup>	59.3	86	6.4×10 <sup>-4</sup>	2.0×10 <sup>-6</sup>
Tel 6R <sup>tr</sup> <i>ku70Δ</i> + pReb1N	37.1	239	<b>0.4</b>	<b>0.1</b>	41.9	74	<b>0.3</b>	<b>0.2</b>
Tel 6R <sup>tr</sup> <i>ku70Δ</i> + pTbf1N	38.9	368	4.3×10 <sup>-2</sup>	4.4×10 <sup>-2</sup>	51.9	89	1.3×10 <sup>-2</sup>	6.0×10 <sup>-4</sup>
Tel 6R <sup>tr</sup> <i>ku70Δ</i> + pOrc2	47.5	198	4.1×10 <sup>-3</sup>	7.8×10 <sup>-4</sup>	51.9	79	1.8×10 <sup>-2</sup>	1.2×10 <sup>-3</sup>
Tel 6R <sup>nat</sup> <i>sir4Δ</i> + pAT4	46.2	221	5.9×10 <sup>-3</sup>	8.3×10 <sup>-5</sup>	51.1	92	1.5×10 <sup>-2</sup>	2.3×10 <sup>-4</sup>
Tel 6R <sup>nat</sup> <i>sir4Δ</i> + pReb1N	37.2	349	<b>0.3</b>	<b>0.2</b>	40.8	169	<b>0.2</b>	2.8×10 <sup>-2</sup>
Tel 6R <sup>nat</sup> <i>sir4Δ</i> + pTbf1N	43	207	4.3×10 <sup>-2</sup>	7.7×10 <sup>-3</sup>	50.6	87	2.1×10 <sup>-2</sup>	3.0×10 <sup>-3</sup>
Tel 6R <sup>tr</sup> + pVP16	37.6	234	<b>0.3</b>	<b>0.2</b>	37.7	85	<b>0.6</b>	<b>0.3</b>
Tel 8L <sup>nat</sup> + pVP16	46.6	148	2.0×10 <sup>-2</sup>	6.4×10 <sup>-4</sup>	54.4	57	2.4×10 <sup>-2</sup>	3.4×10 <sup>-3</sup>
Tel 6R <sup>nat</sup> <i>tell1Δ</i> + pAT4	51.6	184	3.9×10 <sup>-4</sup>	5.8×10 <sup>-7</sup>	49.3	69	<b>5.7×10<sup>-2</sup></b>	1.7×10 <sup>-3</sup>
Tel 6R <sup>nat</sup> <i>tell1Δ</i> + pReb1N	36.9	306	<b>0.4</b>	<b>0.4</b>	43.0	121	<b>0.1</b>	3.8×10 <sup>-2</sup>
Tel 6R <sup>nat</sup> <i>tell1Δ</i> + pTbf1N	43.9	312	6.7×10 <sup>-3</sup>	2.9×10 <sup>-4</sup>	47.0	83	<b>5.5×10<sup>-2</sup></b>	2.1×10 <sup>-3</sup>
Tel 6R <sup>nat</sup> <i>tell1Δ</i> + pVP16	39.3	145	<b>0.3</b>	<b>0.1</b>	45.5	55	<b>0.2</b>	5.0×10 <sup>-3</sup>
Tel 6R <sup>tr</sup> <i>tell1Δ</i> + pAT4	51.6	184	1.9×10 <sup>-3</sup>	2.2×10 <sup>-5</sup>	49.3	69	<b>0.1</b>	<b>8.0×10<sup>-2</sup></b>
Tel 6R <sup>tr</sup> <i>tell1Δ</i> + pReb1N	36.9	306	<b>0.9</b>	<b>0.4</b>	43.0	121	<b>0.5</b>	<b>6.3×10<sup>-2</sup></b>
Tel 6R <sup>tr</sup> <i>tell1Δ</i> + pTbf1N	43.9	312	<b>0.5</b>	<b>8.1×10<sup>-2</sup></b>	46.0	111	<b>0.4</b>	<b>0.2</b>
Tel 6R <sup>tr</sup> <i>tell1Δ</i> + pVP16	39.3	145	<b>0.2</b>	7.9×10 <sup>-3</sup>	45.5	55	<b>0.3</b>	<b>0.2</b>

n represents the total number of cells counted for a specific condition, the p value is obtained with either a t-test comparing the proportion of total spots in zone 1 to the 33% theoretical random proportion, or with a Chi-squared test comparing telomeres in zones 1, 2 and 3 to a theoretical random distribution with an equal n. p values > 0.05 are in bold and indicate no significant difference from random distributions.