A) Rearrangements produced by roX1\(^{Δ891}\) mobilization. A) Four classes of rearrangements were present in white eyed offspring of dysgenic roX1\(^{Δ891}\) flies (top). The roX1 promoter is depicted by a white arrow. Imprecise excisions that remove all (class 1) or the 3' end (class 2) of p[w\(^{Δmc}\) roX1P-βgal] occurred in 4 flies. Rearrangements identical to roX1\(^{SMC17A}\) (class 3) were recovered 38 times. Rearrangements similar to roX1\(^{SMC17A}\), but with the 3' P-end missing, or inserted at a different location, account for 14 flies (class 4). A hypothetical mechanism for generating class 4 is presented in Supplemental Figure 3. B) Excision followed by resection reveals homology between the roX1 promoters on the chromosome and in p[w\(^{Δmc}\) roX1P-βgal] (red arrow). Homology is also present at the 3' P-end on the sister chromatid and at the site where the 5' P-end excised (blue arrow). We postulate that these homologies support gap repair using a sister chromatid template. This will insert the full length LacZ gene into roX1 and substitute the 3' P-end for the original 5’ end, the precise rearrangement found in roX1\(^{SMC17A}\) (bottom). Drawings not to scale.

<table>
<thead>
<tr>
<th>Rearrangement</th>
<th>Structure</th>
<th>Flies in Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>roX1(^{Δ891})</td>
<td>roX1 3' LacZ w(^{+}) 5' roX1</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5' roX1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>LacZ 3' roX1</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>LacZ 3'</td>
<td>14</td>
</tr>
</tbody>
</table>

Figure S2  Rearrangements produced by roX1\(^{Δ891}\) mobilization. A) Four classes of rearrangements were present in white eyed offspring of dysgenic roX1\(^{Δ891}\) flies (top). The roX1 promoter is depicted by a white arrow. Imprecise excisions that remove all (class 1) or the 3’ end (class 2) of p[w\(^{Δmc}\) roX1P-βgal] occurred in 4 flies. Rearrangements identical to roX1\(^{SMC17A}\) (class 3) were recovered 38 times. Rearrangements similar to roX1\(^{SMC17A}\), but with the 3’ P-end missing, or inserted at a different location, account for 14 flies (class 4). A hypothetical mechanism for generating class 4 is presented in Supplemental Figure 3. B) Excision followed by resection reveals homology between the roX1 promoters on the chromosome and in p[w\(^{Δmc}\) roX1P-βgal] (red arrow). Homology is also present at the 3’ P-end on the sister chromatid and at the site where the 5’ P-end excised (blue arrow). We postulate that these homologies support gap repair using a sister chromatid template. This will insert the full length LacZ gene into roX1 and substitute the 3’ P-end for the original 5’ end, the precise rearrangement found in roX1\(^{SMC17A}\) (bottom). Drawings not to scale.