

Table S1: Distribution of dicentric GCRs recovered from different strain backgrounds

Strain background	Translocation class	telomerase proficient	telomerase defective <sup>e</sup>
wild-type	non-reciprocal translocation	3	1
	dicentric isoduplication	1	1
	chromosome fusion		16
checkpoint defective <sup>a</sup>	non-reciprocal translocation	1	6
	dicentric isoduplication	1	1
	chromosome fusion	1	22
HR defective <sup>b</sup>	non-reciprocal translocation	1	2
	dicentric isoduplication	1	3
	chromosome fusion		20
NHEJ defective <sup>c</sup>	non-reciprocal translocation	2	1
	dicentric isoduplication	2	
	chromosome fusion	1	
checkpoint & HR defective	non-reciprocal translocation		4
	dicentric isoduplication		1
	chromosome fusion		10
checkpoint & NHEJ defective	non-reciprocal translocation		3
	dicentric isoduplication		7
	chromosome fusion		5
other <sup>d</sup>	non-reciprocal translocation		2
	dicentric isoduplication	4	3
	chromosome fusion	1	14
TOTAL	non-reciprocal translocation	7	19
	dicentric isoduplication	9	16
	chromosome fusion	3	87

<sup>a</sup> checkpoint deficient strains includes strains that contain *chk1*, *dun1*, *mec1*, *mec3*, *pds1*, *rad9*, *rad53* and/or *tell1* mutations

<sup>b</sup> HR deficient strains includes strains that contain *rad51*, *rad52*, *rad54*, *rad55*, *rad59* and/or *rdh54* mutations

<sup>c</sup> NHEJ deficient strains includes strains that contain *lig4*, *ku70*, *ku80* or *mre11* mutations

<sup>d</sup> Other deficient strains includes strains that contain *asf1*, *exo1*, *rfc5-1* or *top3* mutations

<sup>e</sup> Telomerase deficient includes all strains that contain *tlc1* or *est2* mutations