Table S2. Statistical analysis of 3RRD (relative radial distribution) and eADS (absolute distance to surface) evaluations obtained from 3D-FISH experiments (ARR=average relative radius in %, 0%=nuclear centre, 100%=nuclear border; ADS= absolute distance to surface in nm; n=evaluated nuclei; sem=standard error of the mean, *P*-values in green=distribution difference statistically significant, *P*-values in blue=distribution difference statistically not significant).

(A) Chromosome 1-22 and X large-insert clone probe set

ADS nucleus

Cell line	**n**	**Early clones: ADS ±sem**	**Late clones: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	21	989 nm ±3.2 nm	869 nm ±3.6 nm	120 nm	$P = 0.039$
Mel Juso	22	1703 nm ±3.1 nm	1364 nm ±3.7 nm	339 nm	$P < 0.001$
SW620	22	1640 nm ±2.9 nm	1255 nm ±3.3 nm	385 nm	$P < 0.001$

ARR nucleus

Cell line	**n**	**Early clones: ARR ±sem**	**Late clones: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts	21	63.1% ±0.4%	61.2% ±0.4%	–1.9%	$P = 0.246$
Mel Juso	22	60.0% ±0.4%	61.7% ±0.4%	1.7%	$P = 0.269$
SW620	22	58.9% ±0.4%	63.8% ±0.4%	4.9%	$P = 0.007$

(B) Chromosome 1-22 and X large-insert clone probe set combined with double pulse labeling for the delineation of early and late replication foci

ADS nucleus

Cell line	**n**	**Early clones: ADS ±sem**	**Late clones: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	988 nm ±5.1 nm	698 nm ±5.5 nm	–290 nm	$P = 0.038$

Cell line	**n**	**Early Foci: ADS ±sem**	**Late Foci: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	906 nm ±4.9 nm	995 nm ±5.0 nm	–89 nm	$P = 0.234$

Cell line	**n**	**Early clones: ADS ±sem**	**Early Foci: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	988 nm ±5.1 nm	906 nm ±4.9 nm	82 nm	$P = 0.279$

Cell line	**n**	**Late clones: ADS ±sem**	**Late Foci: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	698 nm ±5.5 nm	995 nm ±5.0 nm	–297 nm	$P = 0.038$

Cell line	**n**	**Counterstain: ADS ±sem**	**Early Foci: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	577 nm ±3.7 nm	906 nm ±4.9 nm	–329 nm	$P = 0.005$

Cell line	**n**	**Counterstain: ADS ±sem**	**Early clones: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	577 nm ±3.7 nm	988 nm ±5.1 nm	–411 nm	$P = 0.003$

Cell line	**n**	**Counterstain: ADS ±sem**	**Late Foci: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	577 nm ±3.7 nm	995 nm ±5.0 nm	–418 nm	$P = 0.003$

Cell line	**n**	**Counterstain: ADS ±sem**	**Late clones: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	8	577 nm ±3.7 nm	698 nm ±5.5 nm	–121 nm	$P = 0.161$

C) Chromosome 2 large-insert clone probe set

ARR nucleus

Cell line	**n**	**Early clones: ARR**	**Late clones: ARR**	**Δ ARR**	***P* (U-test)**

		±sem	±sem		
Human fibroblasts	20	64.4% ±0.99%	68.3% ±0.94%	3.9%	$P = 0.239$
Human lymphoblastoids	22	59.3% ±0.84%	62.8% ±1.06%	3.5%	$P = 0.330$
Gorilla lymphoblastoids	25	60.7% ±0.76%	64.3% ±0.91%	3.6%	$P = 0.140$

Cell line	**n**	**Early clones human ly: ARR ±sem**	**Early clones gorilla ly: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human vs. gorilla lymphoblastoids	22 25	59.3% ±0.84%	60.7% ±0.76%	–1.4%	$P = 0.072$

Cell line	**n**	**Late clones human ly: ARR ±sem**	**Late clones gorilla ly: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human vs. gorilla lymphoblastoids	22 25	62.8% ±1.06%	64.3% ±0.91%	–1.5%	$P = 0.502$

Cell line	**n**	**Early clones human fib: ARR ±sem**	**Early clones human ly: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts vs. human lymphoblastoids	22 25	64.4% ±0.99%	59.3% ±0.84%	5.1%	$P = 0.085$

Cell line	**n**	**Late clones human fib: ARR ±sem**	**Late clones human ly: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts vs. human lymphoblastoids	22 25	68.3% ±0.94%	62.8% ±1.06%	5.5%	$P = 0,252$

Cell line	**n**	**clone 2-3l: ARR ±sem**	**clone 2-6l: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts	20	60.2% ±1.72%	70.3% ±0.45%	10.1%	$P = 0.002$

ADS chromosome 2 territory

Cell line	**n**	**Early clones: ADS ±sem**	**Late clones: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	26	377 nm ±3.7 nm	500 nm ±2.9 nm	–123 nm	$P = 0.134$
Human lymphoblastoids	16	330 nm ±4.4 nm	300 nm ±3.7 nm	+30 nm	$P = 0.734$

(D) Chromosome 5 and 17 BAC probe set

ARR nucleus

Cell line	**n**	**Early clones chr. 17: ARR ±sem**	**Late clones chr. 5: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts	24	54.8% ±0.79%	70.4%±0.99%	15.6%	$P < 0.001$
Human lymphoblastoids	21	40.9% ±0.72%	66.8%±1.04%	25.9%	$P < 0.001$
Gorilla fibroblasts	22	58.8% ±0.76%	66.3% ±0.81%	7.5%	$P = 0.004$
Gorilla lymphoblastoids	20	50.9% ±0.75%	66.1% ±1.04%	15.2%	$P < 0.001$
Gibbon lymphoblastoids	22	51.9% ±0.84%	68.5% ±0.91	16.6%	$P < 0.001$

Cell line	**n**	**Early clones chr. 17: ARR ±sem**	**Early clones der(17): ARR ±sem**	**Δ ARR**	***P* (U-test)**
Mel Juso	21	57.7 ±0.83	51.7 ±0.82	6.0%	$P = 0.027$

Cell line	**n**	**Chr. 17 territory: ARR ±sem**	**der(17) territory: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Mel Juso	21	59.3±0.61	64.7±0.47	5.4%	$P =0.019$

Cell line	**n**	**clone 7-1e: ARR ±sem**	**clones 7-2l/5-1l: ARR ±sem**	**Δ ARR**	***P* (U-test)**

SW620 t(5p7p)	18	60.6% ±2.19%	75.4% ±1.65%	14.8%	$P = 0.009$
SW620 chr. 5 and 7	20	60.7% ±1.31%	69.7% ±1.06%	9.0%	$P = 0.015$

Cell line	**n**	**clone 7-1e: ARR ±sem**	**clone 7-1e: ARR ±sem**	**Δ ARR**	***P* (U-test)**
SW620 t(5p7p) vs. chr. 5 and 7	18 20	60.6% ±2.19%	60.7% ±1.31%	–0.1%	$P = 0.783$

Cell line	**n**	**clones 7-2l/5-1l: ARR ±sem**	**clones 7-2l/5-1l: ARR ±sem**	**Δ ARR**	***P* (U-test)**
SW620 t(5p7p) vs. chr. 5 and 7	18 20	75.4% ±1.65%	69.7% ±1.06%	5.7%	$P = 0.027$

ADS chromosome 5 and 17 territory

Cell line	**n**	**Early clones chr. 17: ADS ±sem**	**Late clones chr. 5: ADS ±sem**	**Δ ADS**	***P* (U-test)**
Human fibroblasts	25	178 nm ±3.5 nm		n.d.	n.d.
	29		634 nm ±3.7 nm		n.d.
Gorilla fibroblasts t(5;17) large	23	469 nm ±3.3 nm	806 nm ±3.2 nm	–377 nm	$P < 0.001$
Gorilla fibroblasts t(5;17) small	23	310 nm ±4.3 nm	691 nm ±3.6 nm	–381 nm	$P < 0.001$

(E) Chromosome 7 BAC probe set

ARR nucleus

Cell line	**n**	**Early clones: ARR ±sem**	**Late clones: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts	20	54.4% ±1.01%	67.5% ±1.01%	13.1%	$P = 0.026$
Human lymphoblastoids	22	56.9% ±0.88%	68.4% ±0.90%	11.5%	$P < 0.001$
Orangutan lymphoblastoids	20	50.6% ±1.03%	69.7% ±1.03%	19.1%	$P < 0.001$
Gibbon lymphoblastoids	20	54.4% ±1.01%	67.5% ±1.01%	13.1%	$P < 0.001$
Karpas 384 chr. 7	22	64.3% ±1.01%	78.0% ±0.95%	13.7%	$P < 0.001$
Karpas 384 der(7)	22	62.5% ±1.34%	70.9% ±1.35%	8.4%	$P = 0.002$

Cell line	**n**	**Early clones: ARR ±sem**	**Early clones: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Karpas 384 der(7) vs. chr. 7	22	62.5% ±1.34%	64.3% ±1.01%	–1.8%	$P = 0.972$

Cell line	**n**	**Late clones: ARR ±sem**	**Late clones: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Karpas 384 der(7) vs. chr. 7	22	70.9% ±1.35%	78.0% ±0.95%	–7.1%	$P = 0.065$

Cell line	**n**	**clone 7-1e: ARR ±sem**	**clone 7-2l: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Mel Juso iso(7p)	**20**	64.5% ±1.24%	67.5% ±0.72%	3.0%	$P = 0.032$
Mel Juso chr. 7	**20**	63.0% ±1.43	65.0% ±0.72%	2.0%	$P = 0.164$

Cell line	**n**	**clone 7-1e: ARR ±sem**	**clone 7-1e: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Mel Juso iso(7p) vs chr. 7	**20**	64.5% ±1.24%	63.0% ±1.43	1.5%	$P = 0.797$

Cell line	**n**	**clone 7-2l: ARR ±sem**	**clone 7-2l: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Mel Juso iso(7p) vs chr. 7	**20**	67.5% ±0.72%	65.0% ±0.72%	2.5%	$P = 0.441$

Cell line	**n**	**7-1e: ARR ±sem**	**7-2l: ARR ±sem**	**Δ ARR**	***P* (U-test)**
Human fibroblasts	22	60.6% ±1.52%	64.3% ±1.55%	–3.7%	$P = 0.614$

Cell line	n	7-2l: ARR ±sem	7-3e: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	64.3% ±1.55%	64.2% ±1.59%	0.1%	$P = 0.952$

Cell line	n	7-3e: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	64.2% ±1.59%	66.4% ±1.49%	–2.2%	$P = 0.653$

Cell line	n	7-4l: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	66.4% ±1.49%	75.6% ±1.61%	–9.2%	$P = 0.025$

Cell line	n	7-1e: ARR ±sem	7-3l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	60.6% ±1.52%	64.2% ±1.59%	–4.0%	$P = 0.459$

Cell line	n	7-1e: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	60.6% ±1.52%	66.4% ±1.49%	–5.8%	$P = 0.201$

Cell line	n	7-1e: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	60.6% ±1.52%	75.6% ±1.61%	–15.0%	$P = 0.001$

Cell line	n	7-2l: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	64.3% ±1.55%	66.4% ±1.49%	–1.9%	$P = 0.489$

Cell line	n	7-2l: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	64.3% ±1.55%	75.6% ±1.61%	–11.3%	$P = 0.019$

Cell line	n	7-3e: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Human fibroblasts	22	64.2% ±1.59%	75.6% ±1.61%	–11.4%	$P = 0.013$

Cell line	n	7-1e: ARR ±sem	7-2l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	60.4% ±1.49%	71.9% ±1.52%	–11.5%	$P = 0.008$

Cell line	n	7-2l: ARR ±sem	7-3e: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	71.9% ±1.52%	65.1% ±1.97%	6.8%	$P = 0.130$

Cell line	n	7-3e: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	65.1% ±1.97%	74.0% ±1.59%	–9.1%	$P = 0.054$

Cell line	n	7-4l: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	74.0% ±1.59%	79.2% ±1.86%	–5.2%	$P = 0.330$

Cell line	n	7-1e: ARR ±sem	7-3e: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	60.4% ±1.49%	65.1% ±1.97%	–4.7%	$P = 0.321$

Cell line	n	7-1e: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	60.4% ±1.49%	74.0% ±1.59%	–13.6%	$P = 0.003$

Cell line	n	7-1e: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	60.4% ±1.49%	79.2% ±1.86%	-18.8%	$P = 0.003$

Cell line	n	7-2e: ARR ±sem	7-4l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	71.9% ±1.52%	74.0% ±1.59%	–2.1%	$P = 0.580$

Cell line	n	7-2l: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	71.9% ±1.52%	79.2% ±1.86%	–7.3%	$P = 0.176$

Cell line	n	7-3l: ARR ±sem	7-6l: ARR ±sem	Δ ARR	*P* (U-test)
Orangutan fibroblasts	22	65.1% ±1.97%	79.2% ±1.86%	–14.1%	$P = 0.027$

Cell line	n	7-1e HSA: ARR ±sem	7-1e PPY: ARR ±sem	Δ ARR	*P* (U-test)
Human vs. Orangutan fibroblasts	**22**	60.6% ±1.52%	60.4% ±1.49%	0.2%	$P = 0.808$

Cell line	n	7-2l HSA: ARR ±sem	7-2l PPY: ARR ±sem	Δ ARR	*P* (U-test)
Human vs. Orangutan fibroblasts	**22**	64.3% ±1.52%	71.9% ±1.45%	–7.6%	$P = 0.082$

Cell line	n	7-3e HSA: ARR ±sem	7-3e PPY: ARR ±sem	Δ ARR	*P* (U-test)
Human vs. Orangutan fibroblasts	**22**	64.2% ±1.59%	65.1% ±1.97%	–0.9%	$P = 0.837$

Cell line	n	7-4l HSA: ARR ±sem	7-4l PPY: ARR ±sem	Δ ARR	*P* (U-test)
Human vs. Orangutan fibroblasts	**22**	66.4% ±1.49%	74.0% ±1.52%	–7.6%	$P = 0.070$

Cell line	n	7-6l HSA: ARR ±sem	7-6l PPY: ARR ±sem	Δ ARR	*P* (U-test)
Human vs. Orangutan fibroblasts	**22**	75.6% ±1.61%	79.2% ±1.86%	–3.6%	$P = 0.602$

ADS chromosome 7 territory

Cell line	n	Early clones: ADS ±sem	Late clones chr. 5: ADS ±sem	Δ ADS	*P* (U-test)
Human fibroblasts	28	333 nm ±3.6 nm	369 nm ±3.4 nm	36 nm	$P = 0.812$
Human lymphoblastoids	24	581 nm ±3.3 nm	622 nm ±3.6 nm	41 nm	$P = 0.743$
Orangutan lymphoblastoids	24	190 nm ±4.3 nm	638 nm ±3.4 nm	448 nm	$P < 0.001$