

Table S1. Associations between chromosomal instability (CIN) and clinical outcome

Cancer types	Approaches	Clinical implications	Refs
Non-small cell lung cancer	Fluorescence in situ hybridization (FISH)	<ul style="list-style-type: none">• CIN is significantly correlated with a worse prognosis by multivariate and univariate analysis• CIN may be an independent prognostic factor of poor clinical outcome	(1)
Breast cancer	Comparative genomic hybridization	<ul style="list-style-type: none">• Certain genomic lesions, especially 11q loss, can play a significant role in early-onset breast tumor formation• Tumors containing TP53 mutations exhibit higher degrees of CIN	(2)
	Dual centromeric FISH	<ul style="list-style-type: none">• Increasing CIN was correlated with improved outcome in ER-negative breast cancer patients	(3)
Diffuse large B-cell lymphoma	Chromosomal abnormality variations	<ul style="list-style-type: none">• Chromosomal abnormality variation identified by G-banding was correlated with prognosis of diffuse large B-cell lymphoma treated with R-CHOP (rituximab, cyclophosphamide, hydroxydaunomycin (doxorubicin), Oncovin (vincristine), and prednisone)	(4)
Bladder cancer	Real-time polymerase chain reaction	<ul style="list-style-type: none">• Levels of blood leukocyte with shorter telomere length might provide an additional noninvasive prognostic marker to better predict personalize treatments and survival in bladder cancer patients	(5)
Multiple myeloma	CIN genome even count (CINGEC)	<ul style="list-style-type: none">• CIN may potentially confer a unique prognostic factor of poor outcome that is not captured in the current landscape of prognostic signatures	(6)
Synovial sarcomas	Complexity Index in Sarcoma	<ul style="list-style-type: none">• CIN may account for reverse metastatic outcomes of adult and pediatric synovial sarcomas	(7)
Colorectal cancer	Molecular analyses using tumor DNA	<ul style="list-style-type: none">• The interplay between microsatellite instability, chromosomal instability, and the CpG island methylator phenotype suggests that specific (epi)genotypes can hold differential prognostic value that may vary over time	(8)

References:

1. Nakamura H, Saji H, Idiris A, Kawasaki N, Hosaka M, Ogata A, *et al.* Chromosomal instability detected by fluorescence in situ hybridization in surgical specimens of non-small cell lung cancer is associated with poor survival. *Clinical Cancer Res* **2003**;9:2294-9
2. Jong Y-J, Li L-H, Tsou M-H, Chen Y-J, Cheng SH, Wang-Wuu S, *et al.* Chromosomal comparative genomic hybridization abnormalities in early- and late-onset human breast cancers: correlation with disease progression and TP53 mutations. *Cancer Genet Cytogenet* **2004**;148:55-65
3. Jamal-Hanjani M, A'Hern R, Birkbak NJ, Gorman P, Gronroos E, Ngang S, *et al.* Extreme chromosomal instability forecasts improved outcome in ER-negative breast cancer: a prospective validation cohort study from the TACT trial. *Ann Oncol* **2015**;26:1340-6
4. Mizuno Y, Tsukamoto T, Kawata E, Uoshima N, Uchiyama H, Yokota I, *et al.* Chromosomal abnormality variation detected by G-banding is associated with prognosis of diffuse large B-cell lymphoma treated by R-CHOP-based therapy. *Cancer Med* **2018**;7:655-64
5. Russo A, Modica F, Guarrera S, Fiorito G, Pardini B, Viberti C, *et al.* Shorter leukocyte telomere length is independently associated with poor survival in patients with bladder cancer. *Cancer Epidemiol Biomark Prev* **2014**;23:2439-46
6. Chung T-H, Mulligan G, Fonseca R, Chng WJ. A novel measure of chromosome instability can account for prognostic difference in multiple myeloma. *PLoS ONE* **2013**;8:e66361
7. Lagarde P, Przybyl J, Brulard C, Perot G, Pierron G, Delattre O, *et al.* Chromosome instability accounts for reverse metastatic outcomes of pediatric and adult synovial sarcomas. *J Clin Oncol* **2013**;31:608-15
8. Simons CC, Hughes LA, Smits KM, Khalid-de Bakker CA, de Bruine AP, Carvalho B, *et al.* A novel classification of colorectal tumors based on microsatellite instability, the CpG island methylator phenotype and chromosomal instability: implications for prognosis. *Ann Oncol* **2013**;24:2048-56