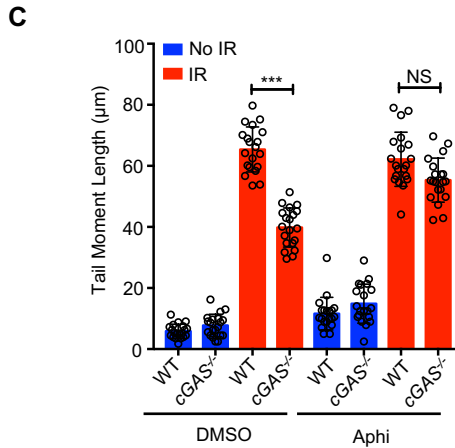
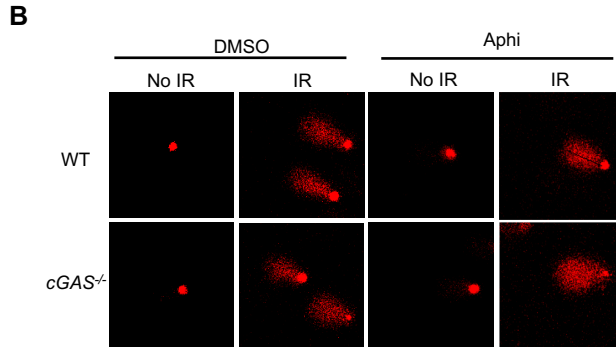
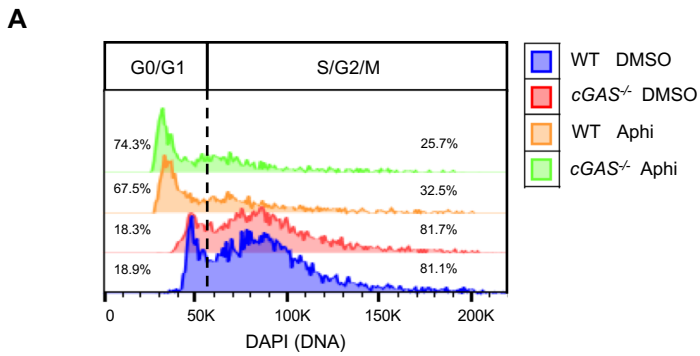


Jiang *et al.*, Chromatin-bound cGAS is an inhibitor of DNA repair and accelerates genome destabilization and cell death.

## Appendix

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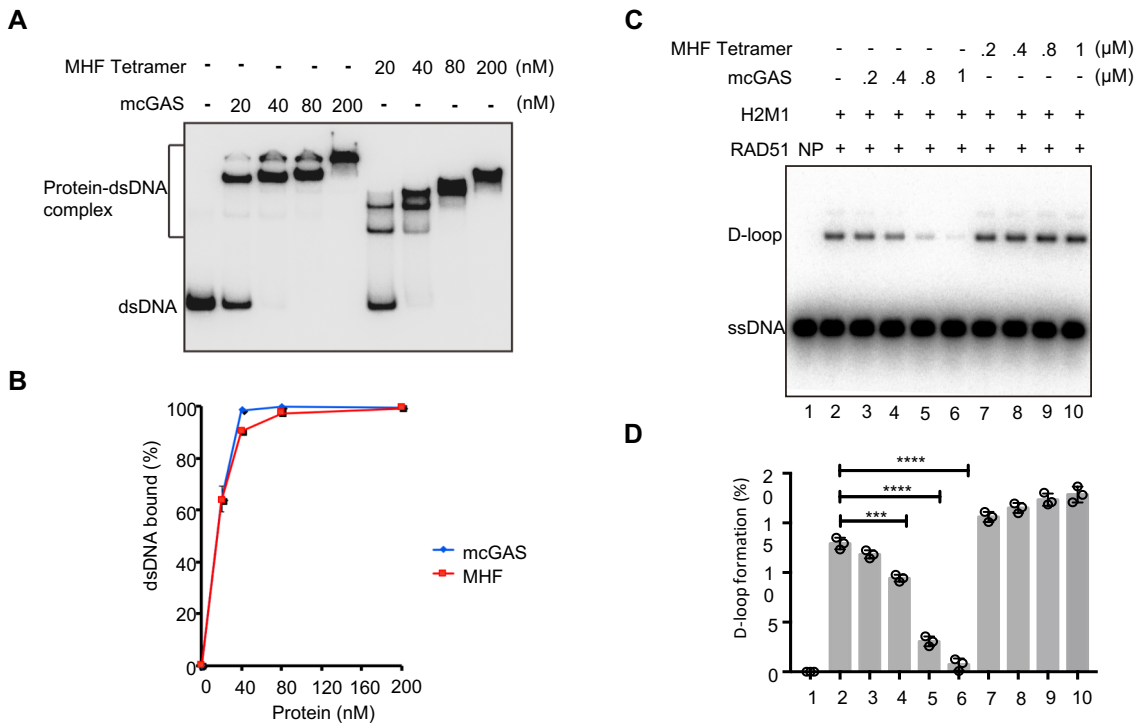


**Appendix Figure S1.**  
**cGAS suppress DNA repair active during S/G2 phase.**

A. Flow cytometric cell cycle analysis of indicate cells treated with Aphidicolin(Aphi) or DMSO control.

B,C. cGAS does not suppress DNA repair in cells arrested at G1/ S boundary. Representative images (B) and corresponding quantification (C) of comet tails in WT and cGAS<sup>-/-</sup> BMDMs that were either treated with either DMSO (control), or Aphidicolin (+Aphi) then  $\gamma$ -irradiated (IR: 10 Gy) and analyzed 15 min later. Each data set in the graphs (C) represent mean score from 20 different fields with  $n > 200$  comets.

Data information: Statistical significance was using one-way ANOVA followed by Sidak's post-test.. NS:  $P > 0.05$ , \*\*\* $P \leq 0.001$ . experiments were repeated at least three times in triplicates. Data are represented as Mean  $\pm$  SEM.



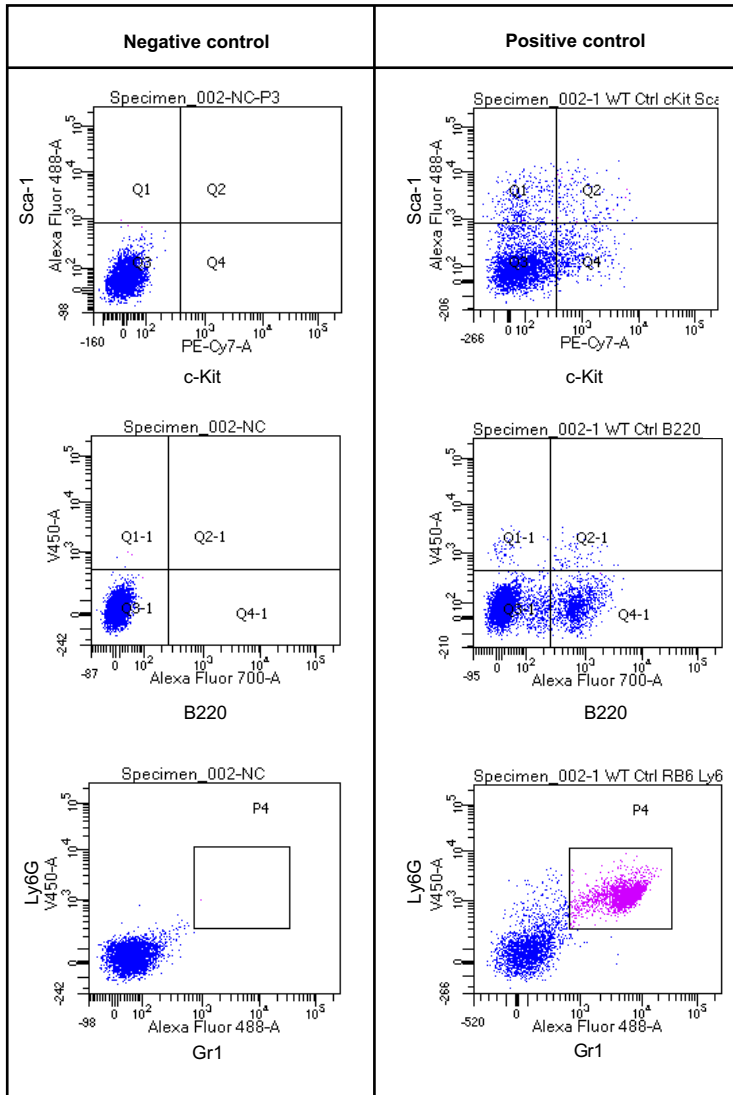
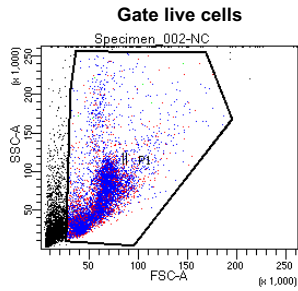
**Appendix Figure S2.**  
**Inhibition of D-loop formation is not a universal feature of all DNA binding proteins.**

A,B. cGAS and MHF binds to dsDNA with similar affinity. 20-200 nM of cGAS or MHF were incubated with dsDNA at 37°C and protein-dsDNA complexes analyzed by gel separation (A) densitometric quantification were graphed as the average of triplicates  $\pm$  SD (B).

C. Pre-incubation of template dsDNA with cGAS blocks subsequent D-loop by RAD51 while pre-incubation with the DNA binding protein MHF does not.

D. Percentage of D-loop formed in each reaction (C) graphed as the average of triplicates  $\pm$  SD.

Data information: Statistical significance was using one-way ANOVA followed by Sidak's post-test. \*\*\* $P \leq 0.001$ , \*\*\*\* $P \leq 0.0001$ .



**Appendix Figure S3.**  
**Gating strategies for *in vivo* Bone marrow depletion.**

**Appendix Table S1.** Oligonucleotides used in this study.

Name	Sequence	Assay
IFNB1	5'-CAGCAATTTTCAGTGTGAGAAGCT-3' 5'-TCATCCTGTCCTTGAGGCAGTA-3'	RT-PCR
18srRNA	5'-GATATGCTCATGTGGTGTG-3' 5'- AATCTTCTTCAGTCGCTCCA-3'	RT-PCR
P1	TCTATTTATGTCTCTTTTATTTCAATTCCTATATTTATTCTATTATGT TTTATTCATTTACTTATTTCTTTATGTTTCATTTTTATATCCTTTACTTTA TTTTCTCTGTTTATTCATTTACTTATTTTGTATTATCCTTATCTTATTTA	DNA strand exchange
P2	AGAATAAGTAAATGAATAAAACATAATAGGAATAAATA TAGGAAATGAAATAAAAGAGAC	DNA strand exchange
P3	GTCTCTTTTATTTCAATTCCTATATTTATTCTATTATG TTTTATTCATTTACTTATTCT	DNA strand exchange