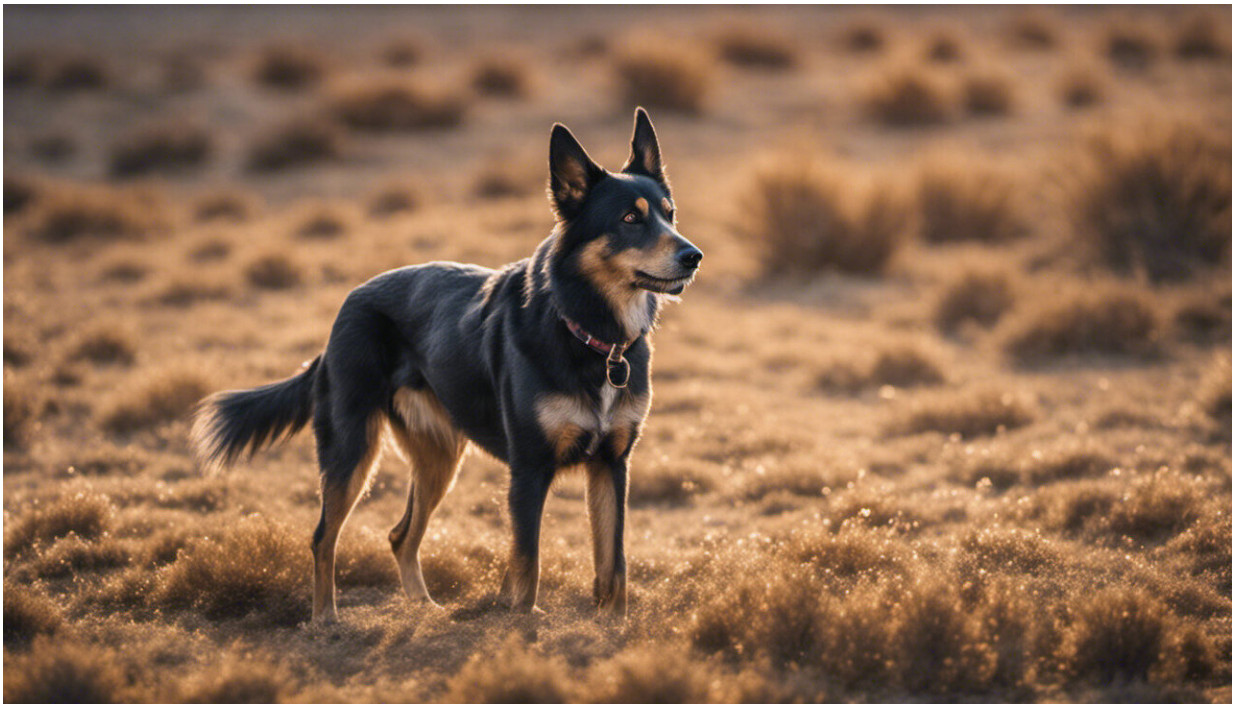


Extra support for cells under stress may be a job for DoGs

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Credit: AI-generated image ([disclaimer](#))

Stress wreaks havoc on our health—even at the cellular level. Cells under certain kinds of duress can lose water and put pressure on our DNA, making it difficult for genes to carry out critical functions such as self-repair. Now Yale School of Medicine researchers have found a peculiar way cells fight back against stress.

Normally, single strands of messenger RNAs (mRNA) of precise length are produced from the DNA's "instruction manual" to make proteins that carry out critical life functions. However, Yale researchers found that in about 10% of genes in stressed human cells, this mRNA runs right through a cellular stop sign and continues to include so-called "junk" sequences that do not code for proteins.

The researchers have named this seemingly superfluous excess RNA DoGs—or downstream of genes RNA.

"But as usual, nature does not waste things," said lead author Anna Vilborg of Yale's molecular biology and biophysics department, who conducted the research in the lab of Professor Joan Steitz. They found preliminary evidence that these DoGs actually may physically help support chromosomes during episodes of [stress](#). The research was published online July 16 in the journal *Molecular Cell*.

More information: "Widespread Inducible Transcription Downstream of Human Genes." DOI: [dx.doi.org/10.1016/j.molcel.2015.06.016](https://doi.org/10.1016/j.molcel.2015.06.016)

Provided by Yale University

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