

Resource Summary Report

Generated by FDI Lab - SciCrunch.org on May 13, 2025

Stress Induced (DNA) Duplex Destabilization

RRID:SCR_007924

Type: Tool

Proper Citation

Stress Induced (DNA) Duplex Destabilization (RRID:SCR_007924)

Resource Information

URL: <http://psb.stanford.edu/psb-online/proceedings/psb01/benham.pdf>

Proper Citation: Stress Induced (DNA) Duplex Destabilization (RRID:SCR_007924)

Description: THIS RESOURCE IS NO LONGER IN SERVICE, documented August 22, 2016. A database of stress induced DNA destabilizations. It currently incorporates prokaryotic and eukaryotic genomes only, with archea and viruses to follow. This research group has developed statistical mechanical methods to computationally analyze the occurrence of structural transitions in stressed DNA molecules. When these methods are used to analyze genomic DNA sequences, they make highly precise predictions of the locations at which the DNA duplex is destabilized, and the amount of destabilization experienced. Several experiments have been performed to date to assess stress-induced DNA destabilization in specific DNA sequences, both in vitro and in vivo. In all cases our methods correctly predicted the locations and extents of separated regions at single base pair resolution as functions of the level of imposed superhelical stress. This quantitatively close agreement enables our computational methods to be used with confidence to analyze other sequences, on which experiments have not been performed. We have analyzed a wide variety of genomic DNA sequences in this way, including the complete genomes of *Escherichia coli* and *Saccharomyces cerevisiae*. This work has shown that the susceptibility to stress-induced destabilization is closely associated with several classes of DNA regulatory regions, including promoters and terminators, replication origins, nuclear matrix attachment sites, DNase hypersensitive sites, and hotspots for translocation, retrotransposon integration or recombination. Working in collaboration with experimental groups, this approach is providing unprecedented new insights into the precise mechanisms governing numerous biologically important events, including eukaryotic nuclear scaffold attachment to c-myc oncogene regulation, activation of transcription from IHF-regulated genes in *E. coli*, transcription termination in yeast, and activation of replication of a mutant, encephalopathy-producing JC virus.

Abbreviations: SIDD

Synonyms: Stress Induced (DNA) Duplex Destabilization

Resource Type: data or information resource, database

Funding:

Availability: THIS RESOURCE IS NO LONGER IN SERVICE

Resource Name: Stress Induced (DNA) Duplex Destabilization

Resource ID: SCR_007924

Alternate URLs: <http://benham.genomecenter.ucdavis.edu/>

Old URLs: <http://www.genomecenter.ucdavis.edu/benham/siddbase>

Record Creation Time: 20220129T080244+0000

Record Last Update: 20250507T060534+0000

Ratings and Alerts

No rating or validation information has been found for Stress Induced (DNA) Duplex Destabilization.

No alerts have been found for Stress Induced (DNA) Duplex Destabilization.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We have not found any literature mentions for this resource.