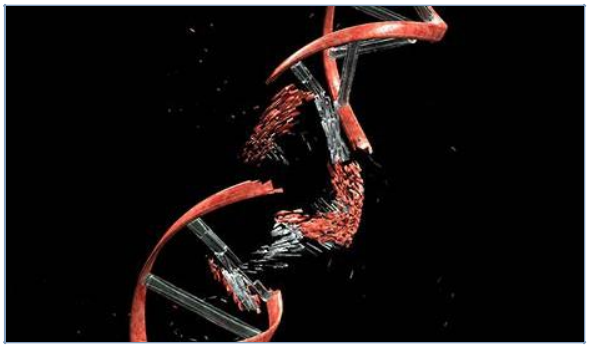
Key tool in DNA repair kit found

By Bill Hathaway March 23, 2017



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Breaks in DNA can cause chromosome rearrangements, abnormalities linked to cancer. Now Yale scientists have identified how the molecule DNA2 helps begin the complex process of repairing these breaks.

Biochemical analysis by James Daley, Adam Miller, and colleagues in the lab of Patrick Sung, professor of molecular biophysics and biochemistry and of therapeutic radiology, identifies a novel role for this enzyme. It shows that DNA2 travels down a single-stranded DNA tail, and then cuts the damaged DNA when it reaches a double-stranded region, an important early step in repair. Daley notes that DNA2 is a potential target for cancer therapeutics because it is overexpressed in many tumors and promotes their proliferation.

The research was published March 23 in the journal Genes and Development.