Table of Contents

RESEARCH METHODS

ESSAY

ARTICLES

On the Cover

This image is from an animation depicting the process of DNA replication. The animation takes advantage of resolved structural data to realistically portray the components of the DNA replication machinery and how they function together. The DNA helix on the bottom left enters the blue donut-shaped helicase, which spins around the DNA and unwinds it into two single template strands. The strand on the right is continuously copied as it feeds through the purple and green replication complex. The strand on the left feeds through the same complex, but the DNA is copied in segments because of its opposite orientation. Animations like this synthesize a wealth of molecular structure data to capture how complex biological processes are facilitated by molecular interactions and structure changes. On page 21, Barber and Stark review a set of online materials that emphasize the relationship between molecular form and function. This animation is available online through the Dolan DNA Learning Center's 3D Animation Library and the Howard Hughes Medical Institute's Biointeractive website. (Image credit: Howard Hughes Medical Institute)