New discovery challenges long-held model of DNA replication

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It may be time to update biology texts to reflect newly published data from a collaborative team of scientists at Rockefeller University, Stony Brook University, and the U.S. Department of Energy's Brookhaven National Laboratory. Using cutting-edge electron microscopy (EM) techniques, the investigators gathered the first ever images of the fully assembled replisome, providing new insight into the molecular mechanisms of replication.

"Our finding goes against decades of textbook drawings of what people thought the replisome should look like," remarked co-senior author Michael O'Donnell, Ph.D., professor and head of Rockefeller's Laboratory of DNA Replication. "However, it's a recurring theme in science that nature does not always turn out to work the way you thought it did."

The researcher's findings focused on the replisome found in eukaryotic organisms, a category that includes a broad swath of living things, including humans and other multicellular organisms. Over the past several decades, there has been an array of data describing the individual components comprising the complex nature of replisome. Yet, until now no pictures existed to show just how everything fit together.

"This work is a continuation of our long-standing research using electron microscopy to understand the mechanism of DNA replication, an essential function for every living cell," explained co-senior author Huilin Li, Ph.D., biologist with joint appointments at Brookhaven Lab and Stony Brook University.

Read full, original post: Decades Old DNA Replication Models Called Into Question