THE FALL OF A DOGMA: PROTEIN-TEMPLATED DNA SYNTHESIS

1956–1958: A. Kornberg — DNA synthesis from a DNA template, following Watson–Crick base pairing.
1970: Temin and Baltimore — DNA synthesis from an RNA template (Reverse Transcriptase).
DNA synthesis from a protein template? A heresy against the dogma.
April 2026: the heresy becomes reality. Deng et al. report a bacterial enzyme that uses its own amino acid structure as the template for DNA synthesis (1).
Technically, this mechanism is part of a bacterial defense system (DRT3) in which the enzyme Drt3b produces short, alternating dinucleotide repeats. The conceptual weight of this discovery lies not in the length of the sequence, but in the process: the enzyme does not "read" a sequence of nucleotides. Instead, it uses its own amino acid structure and active site residues as a blueprint to assemble DNA. By mimicking the role of a traditional template, the protein itself dictates the genetic sequence. It is a profound conceptual shift that demonstrates life has evolved fundamentally new ways to produce genetic information, effectively rewriting the "Central Dogma."

1. https://www.science.org/doi/10.1126/science.aed1656