

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Minimum free energy path for conformational switching from polymerization to exonuclease mode for the Pol III holoenzyme complex. Individual subunits are colored as follows: α is orange; ϵ is light green; theta is magenta; primer DNA strand is light blue; template DNA strand is dark blue; mismatched T base at the primer end is red; pol and exo active site residues are shown as black spheres. The PHP domain, portions of the fingers domain and the θ subunit were omitted in the latter half of the video to ensure unobstructed view of the primer.

File Name: Supplementary Movie 2

Description: Kinetically distinct intermediates along the pol-to-exo mode transition identified from the multi-ensemble Markov model. Individual subunits are colored as follows: α is orange; ϵ is light green; θ is magenta; primer DNA strand is light blue; template DNA strand is dark blue; mismatched T base at the primer end is red; pol and exo active site residues are shown as black spheres. Amino acid residues from the α and ϵ subunits that contact the dsDNA during the transition are colored by atom type (C is dark green, O is red, N is blue, S is yellow) and shown in stick representation.