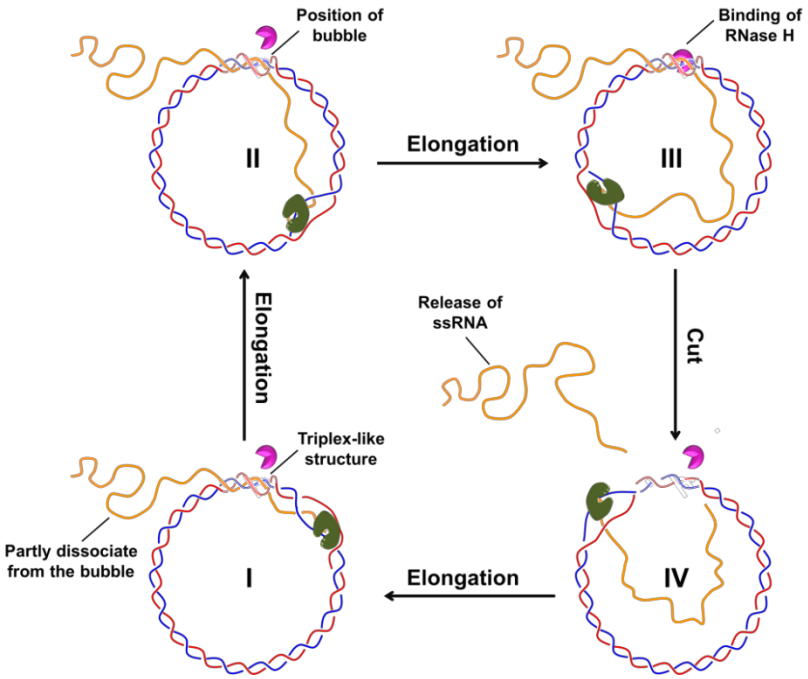
Supplemental_figure_S1



Proposed mechanism for the combination of cleavage and elongation during pfRCT. After T7 RNAP initiates *de novo* transcription at the bubble (Liu and Martin 2001), the elongation is carried out efficiently. The produced RNA hybridizes with the ssDNA part at the bubble to form DNA/RNA hybrid. The other DNA strand at the bubble can twine around DNA/RNA duplex to form a loose triplex-like structure (R-loop). After cleaved by RNase H, the RNA dissociates so that the elongation proceeds again. Obviously, once transcription starts, RNA polymerase cannot initiate it again because no promoter sequence is present, and the triplex-like or duplex-like (see IV, after RNA is cleaved) structure there is not proper for initiation again. Because the RCT can be carried out in either direction, the produced ssRNA can hybridize quickly to form dsRNA (see Fig. 1).

Liu CH, Martin CT. 2001. Fluorescence characterization of the transcription bubble in elongation complexes of T7 RNA polymerase. *J Mol Biol* **308:** 465–475. doi:10.1006/jmbi.2001.4601