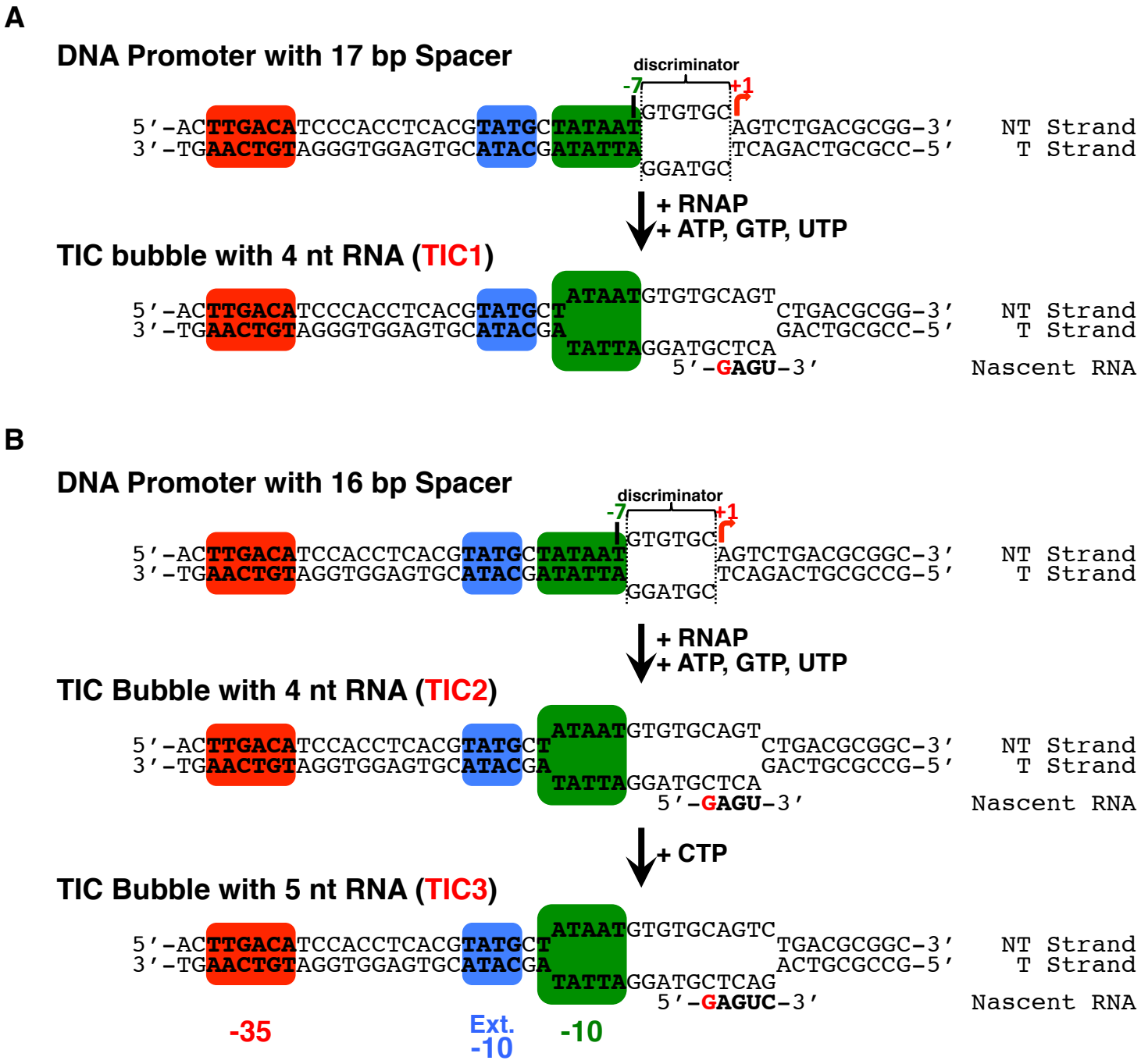

Figure S1, related to Table 1. Synthetic DNA promoters used for crystallizing transcription initiation complexes. (**A**) A 49-bp DNA promoter with a 17-bp spacer. (**B**) A 49-bp DNA promoter with a 16-bp spacer. Both promoters produce an RNA tetranucleotide from ATP, GTP and UTP. Soaking TIC2 crystals with CTP extends the RNA to 5 nt (TIC3). The conserved -35, -10 and extended -10 sequences were shaded with colors.

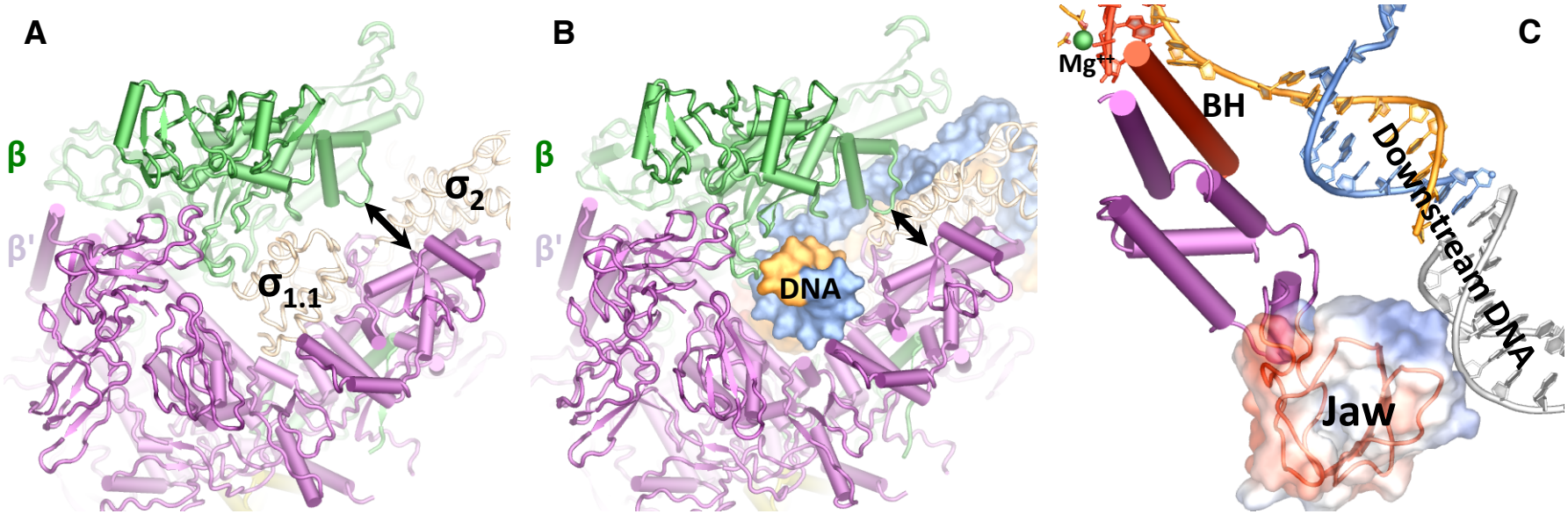

Figure S2, related to Figure 1. The Downstream Primary Channel. (**A**) Downstream channel of the *E. coli* RNAP apo holoenzyme. The $\sigma_{1.1}$ domain in the RNAP apo holoenzyme is modeled based on that reported in literature (Bae et al., 2013). (**B**) Downstream channel of the transcription initiation complex. The RNAP subunits and nucleic acid strands in both (**A**) and (**B**) are color coded as in Fig. 1. (**C**) A close-up view of the interaction between the jaw domain and the downstream DNA in the TIC. A fraction of the *E. coli* RNAP core, including the catalytic metal center (Mg^{++}) and the bridge helix (BH), is shown for reference. The jaw domain is also shown in a surface potential diagram.

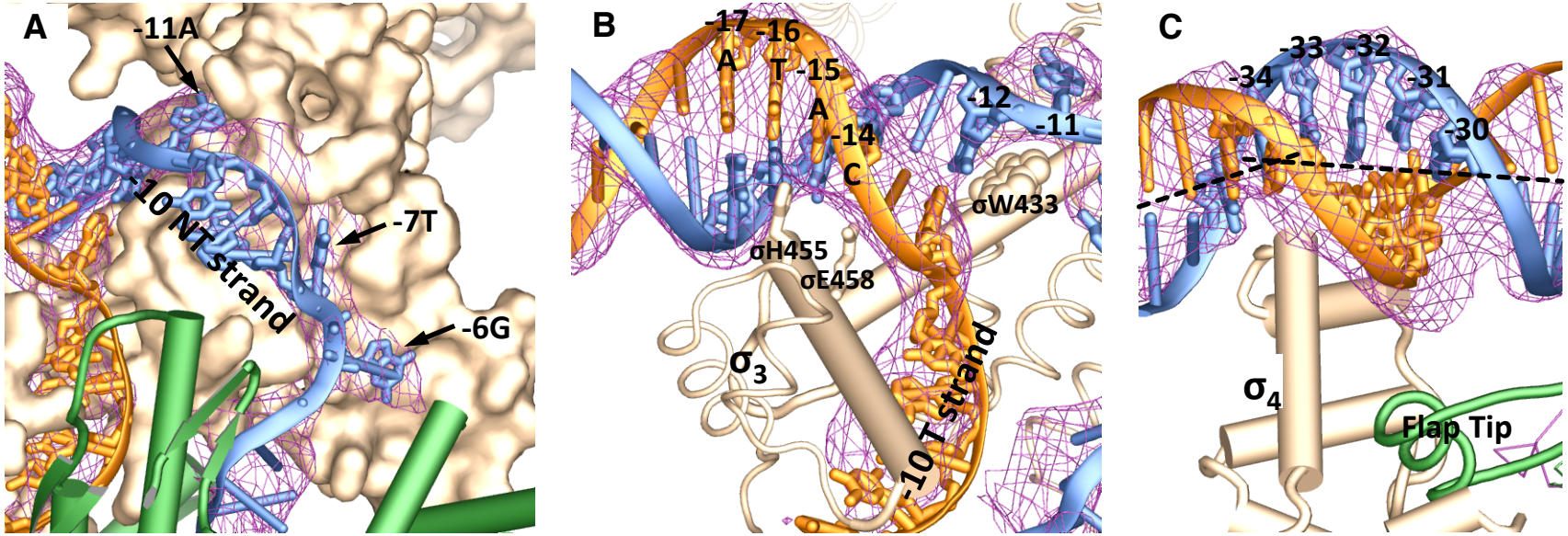

Figure S3, related to Figure 2. Promoter Recognition by σ^{70}. (**A**) σ_2 interacts with the -10 NT-strand. σ^{70} is shown in a surface representation. (**B**) Recognition of the extended -10. Two perpendicular α helices spanning the σ_2 and σ_3 domains are inserted into the major groove of the extended -10 region. (**C**) σ_4 interacts with the promoter -35 region. DNA strands and protein subunits are colored as in Figure 1. DNA strands are shown in ladders with the conserved -35, -10 and extended -10 residues also shown in sticks. Dashed lines mark the DNA axis that bends toward the protein due to protein-DNA interactions. Purple meshes show the σ_A-weighted F_{obs}-F_{calc} electron density map contoured at 2.0 σ for the promoter DNA.

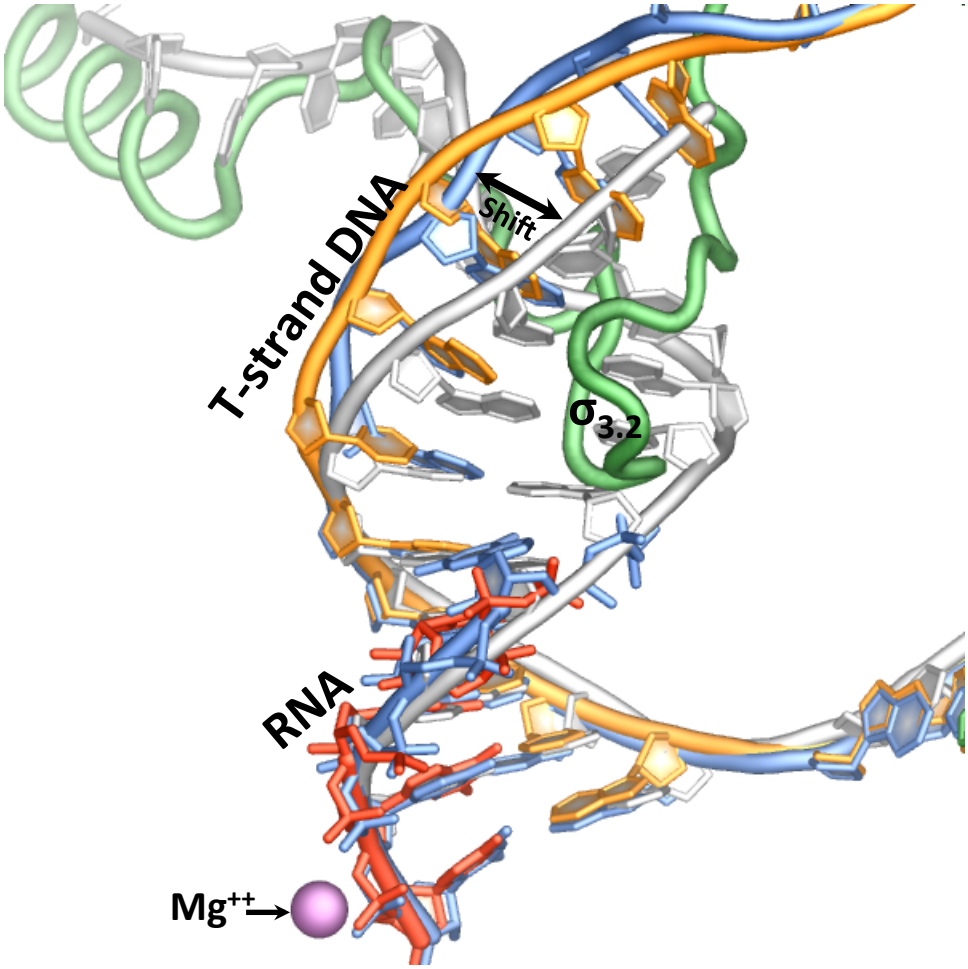

Figure S4, related to Figure 3. Comparison of the T-strand DNA between the TIC and TEC. The template DNA strands and the nascent RNA oligonuleotides from the TICs (TIC1, orange and red respectively; TIC3, both strands in blue), and the T-strand DNA and RNA from the transcription elongation complex (TEC, both strands in grey) (Vassylyev et al., 2007) are superimposed using their DNA-RNA hybrids portion backbones. A σ^{70} fragment (green) and the catalytic metal center (Mg^{++}, purple ball) from TIC1 are shown for reference.