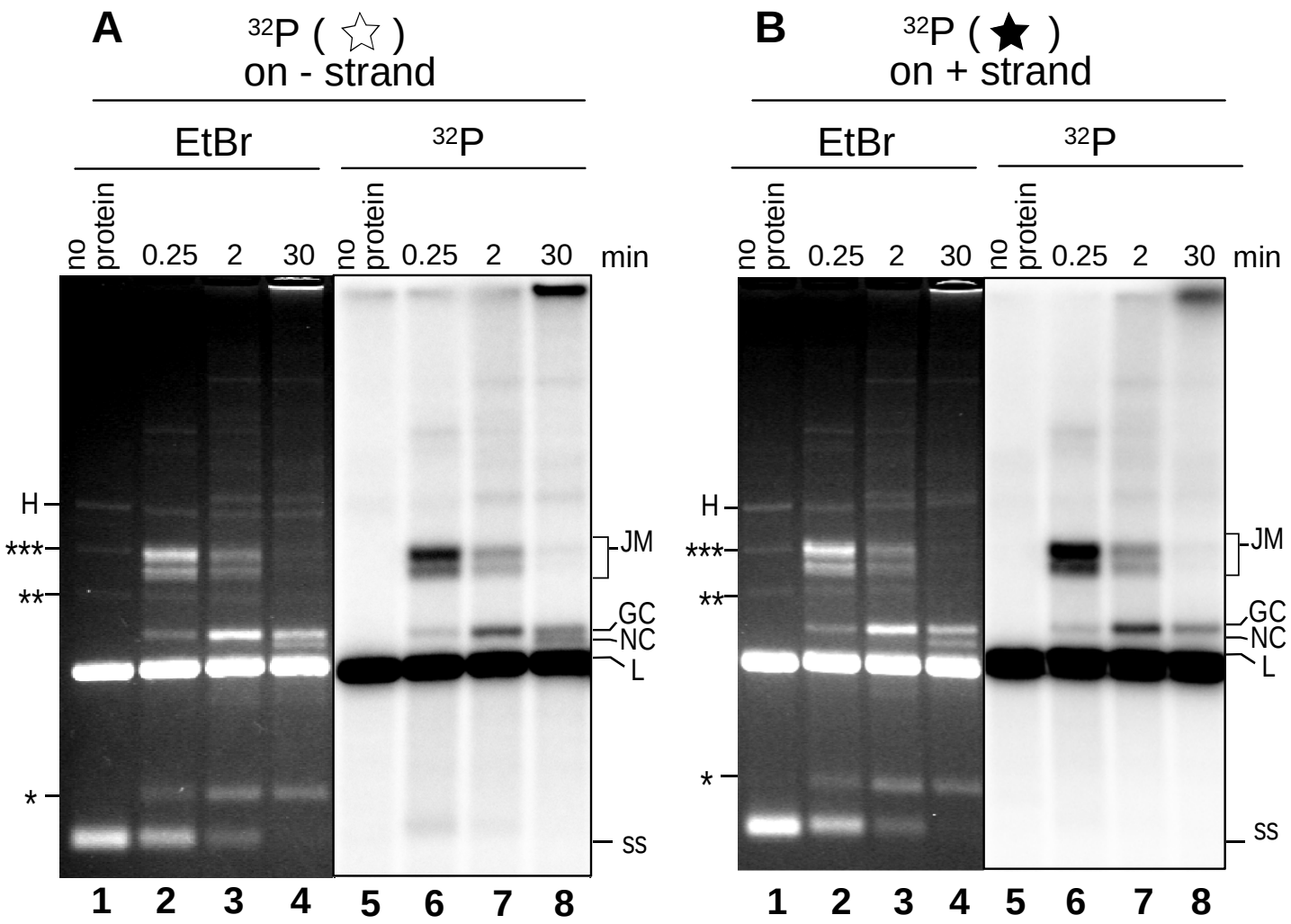

Supplementary Figure S1. (A) Time course of the annealing of the displaced DNA strand was performed as shown in Figure 4, except that the "-" strand of the dsDNA was labeled with ^{32}P (see Figure 3A). Gel was visualized with ethidium bromide staining (lanes 1 to 4) and then by phosphorimaging (lanes 5 to 8). Although the labeled DNA strand eventually incorporated to the nicked circular DNA product (Figure 3C), the label first deposited on the gapped circle (lanes 2, 3, 6, and 7). Longer incubation (30 min, lanes 4 and 8) produced nicked circular DNA product that was also labeled. Lanes 1 and 5 show DNA substrates incubated without any protein in either step 1 or 2. **(B)** As a control, same experiment as (A) was performed with the dsDNA that was labeled on "+" strand with ^{32}P. The labeled DNA strand was to be incorporated to gapped circular DNA product (see Figure 3A and B). Consistently, label did not deposited on the nicked circle but stayed on the gapped circle.

Bands indicated by " * ", " ** ", and " *** ", which were visualized by ethidium bromide staining but not by phosphorimaging, are partial annealing products of ssDNA(SK+) and ssDNA(SK-). Since two ssDNA molecules were incubated without RPA in lane 1, these products were produced by spontaneous annealing.