



Supplementary Figure 1: FtsK_{50C}Δγ triplex displacement is not affected by FRS orientation. (a) Five consecutive FRS sequences (arrowheads) in the non-permissive or the permissive orientation are located on a linear duplex DNA between a 21bp triplex (jagged line), and a 3 kbp “antenna” region. FtsK (blue sphere) often binds within the antenna region due to its relative length. Translocation of FtsK into the non-permissive FRS region frequently reverses FtsK, protecting the triplex (top). FtsK translocation into the permissive FRS region leads to displacement of the triplex (bottom). (b) Percent FtsK_{50C} (blue) and FtsK_{50C}Δγ (red) triplex displacement on permissive (circles) or non-permissive (squares) substrates over time. Solid lines represent fits to the experimental data to $A_0(1 - e^{-kt})$ where the rate (k) and the baseline (A_0) were floated. The rates of displacement were 1.5 ± 1 (permissive) and $0.9 \pm 0.1 \text{ min}^{-1}$ (non-permissive) for FtsK_{50C}Δγ and 0.5 ± 0.05 (permissive) and $0.07 \pm .01 \text{ min}^{-1}$ (non-permissive) or FtsK_{50C}. The ratios of displacement rates for FtsK_{50C}Δγ and FtsK_{50C} were thus 1.5 ± 1 and 7 ± 1 , respectively.