

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Example of diffraction-limited spot of fluorescent CMG moving unidirectionally along a DNA molecule held in an optical trap in the presence of ATP.

File Name: Supplementary Movie 2

Description: Example of a diffraction-limited spot of fluorescent CMG diffusing along a DNA molecule held in an optical trap in the absence of ATP.

File Name: Supplementary Movie 3

Description: Example of two unidirectionally moving fluorescent CMGs that start within the same diffraction-limited spot and split up into two distinct diffraction-limited spots that move in opposite directions along a DNA molecule held in an optical trap in the presence of ATP (related to Fig. 3c).