

Supporting Information

Figure 1supp: *DNA lengthening due to binding of $Ru(phen)_2dppx^{2+}$.* Histograms of DNA length are shown for five ruthenium concentrations: (a) 750 nM Ru, or 1:1 Ru:base pairs (b) 3.0 μ M Ru, or 4:1 Ru:base pairs (c) 6 μ M, or 8:1 Ru:base pairs (d) 9.0 μ M or 12:1 Ru:base pairs (e) 15 μ M or 20:1 Ru:base pairs. The DNA concentration is 750 nM base pairs in all cases. The mean measured length of the DNA molecules alone is 1.43 ± 0.03 μ m (black arrow).

Figure 2supp: *DNA lengthening due to binding of $Ru(phen)_2dpq^{2+}$.* Characteristic AFM images and histograms of DNA length are shown for five ruthenium concentrations: (a) 750 nM Ru, or 1:1 Ru:base pairs (b) 3.0 μ M Ru, or 4:1 Ru:base pairs (c) 6 μ M, or 8:1 Ru:base pairs (d) 9.0 μ M or 12:1 Ru:base pairs (e) 15 μ M or 20:1 Ru:base pairs.

Figure 3supp: *DNA lengthening due to intercalative binding by $Ru(phen)_3^{2+}$.* Characteristic AFM images and histograms of DNA length are shown for five ruthenium concentrations: (a) 750 nM Ru, or 1:1 Ru:base pairs (b) 1.5 μ M Ru, or 2:1 Ru:base pairs (c) 7.5 μ M or 10:1 Ru:base pairs (d) 19 μ M, or 25:1 Ru:base pairs; (e) 37.5 μ M, or 50:1 Ru:base pairs.

Figure 4supp: *DNA lengthening due to binding of $Ru(bpy)_3^{2+}$.* Characteristic AFM images and histograms of DNA length are shown for five ruthenium concentrations: (a)

750 nM Ru, or 1:1 Ru:base pairs (b) 3.0 μ M Ru, or 4:1 Ru:base pairs (c) 9.0 μ M or 12:1 Ru:base pairs (d) 15 μ M, or 20:1 Ru:base pairs.

Figure 1supp

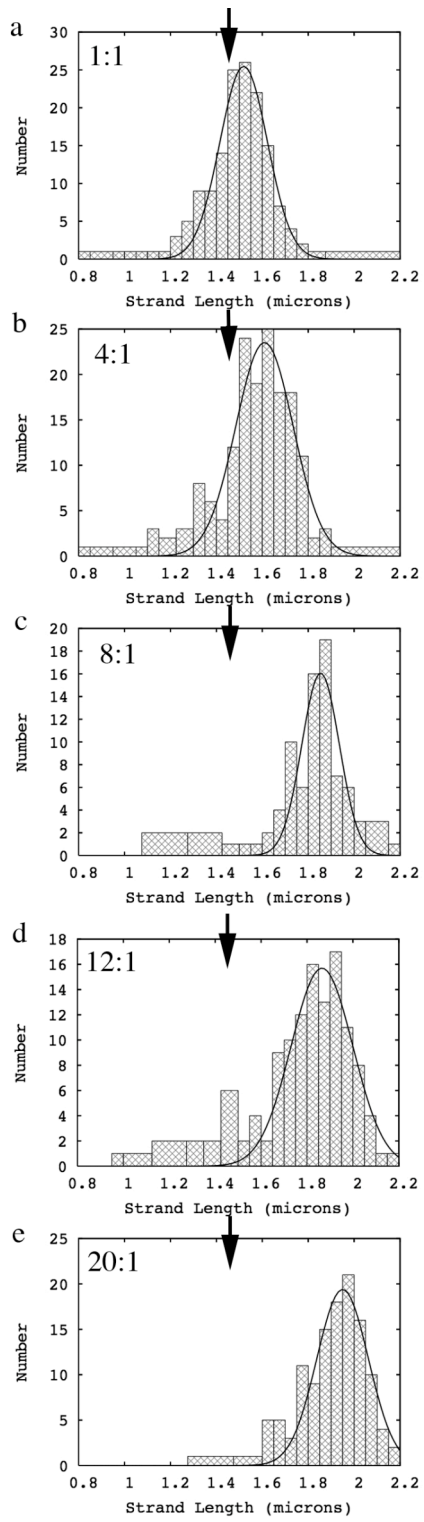


Figure 2supp

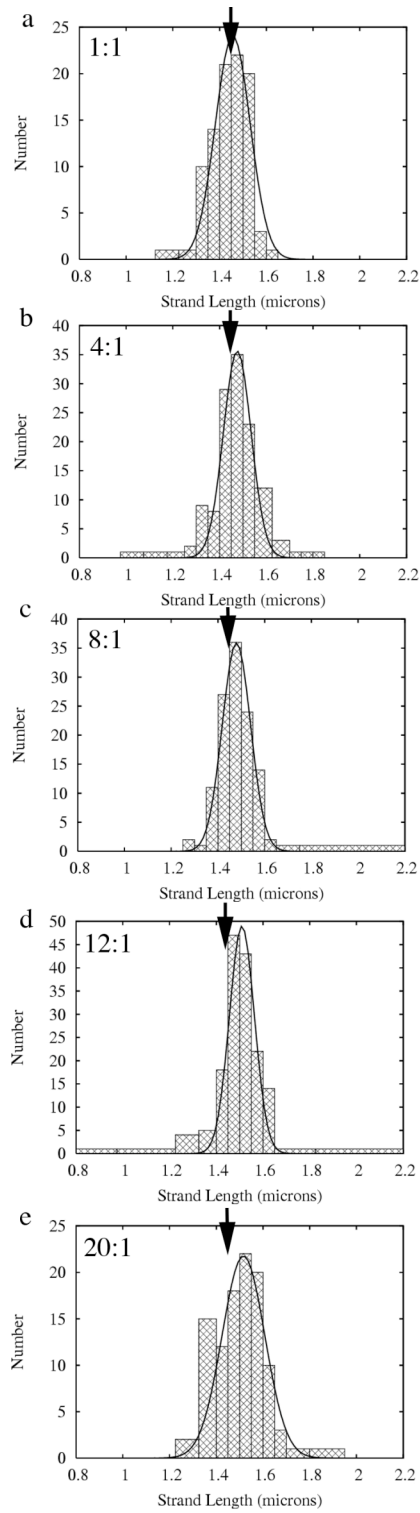


Figure 3supp

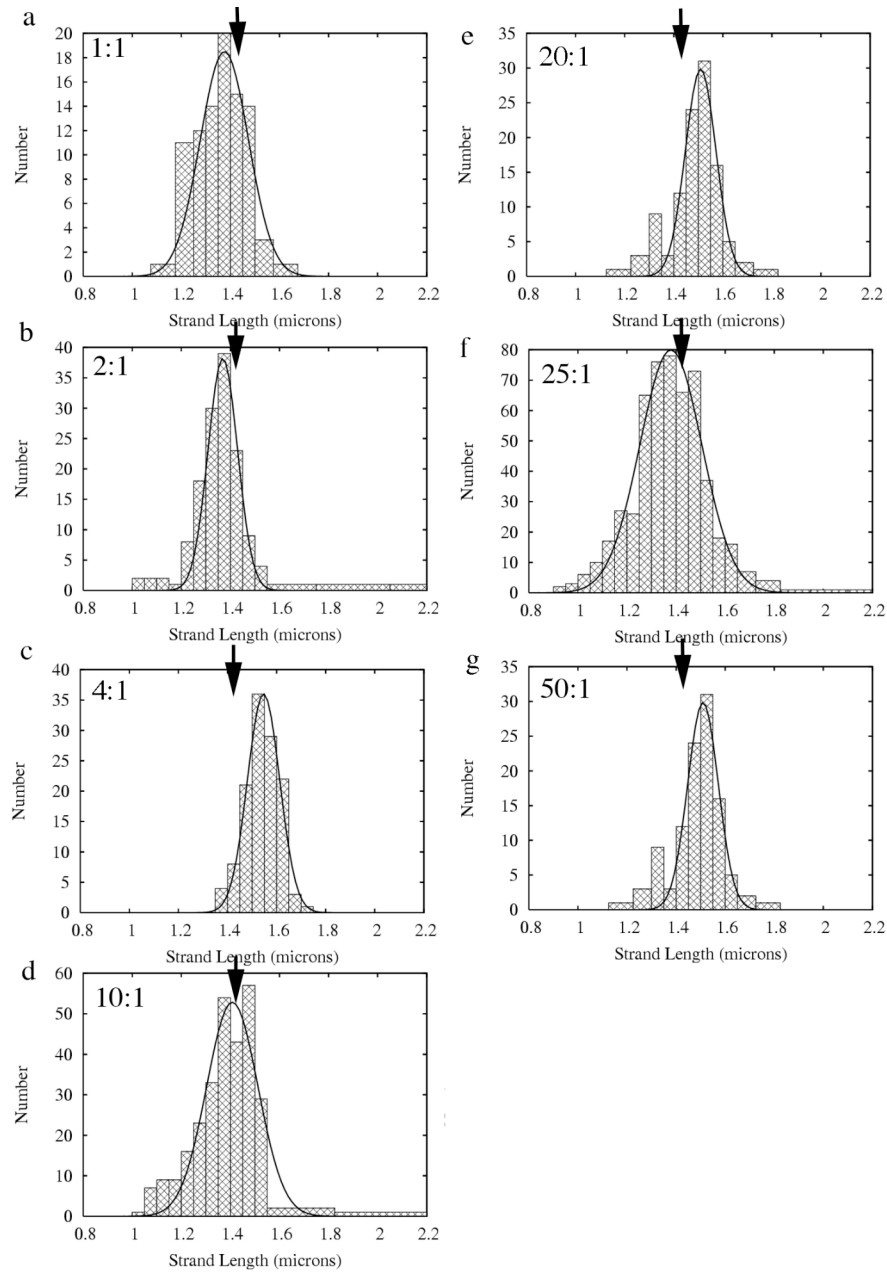


Figure 4supp

