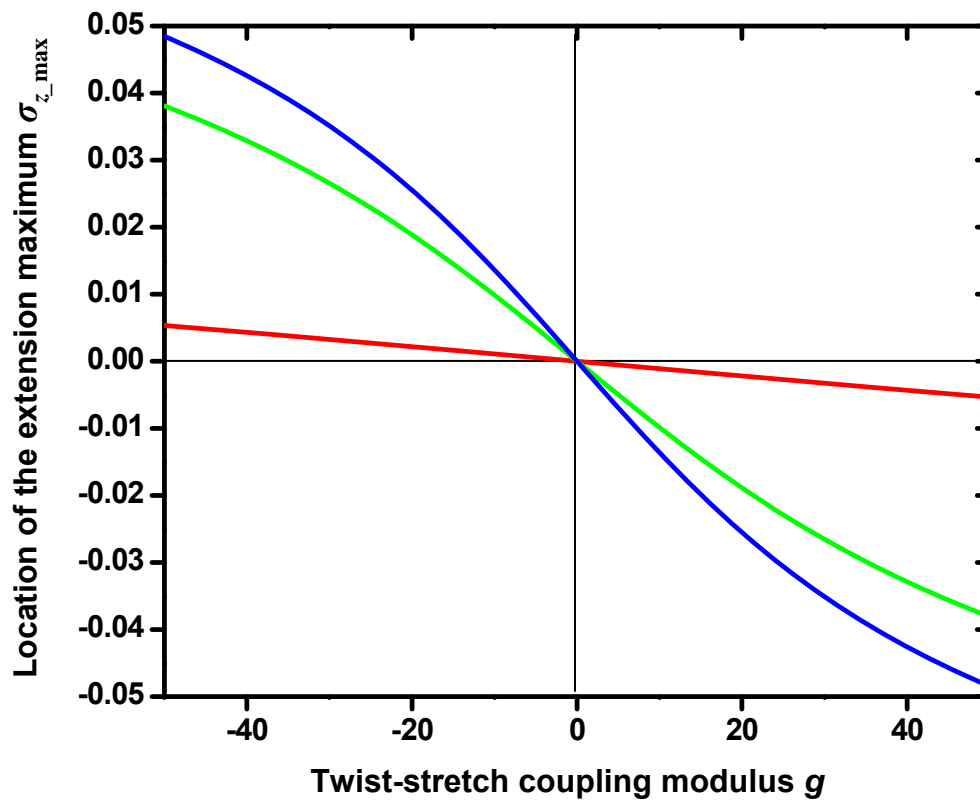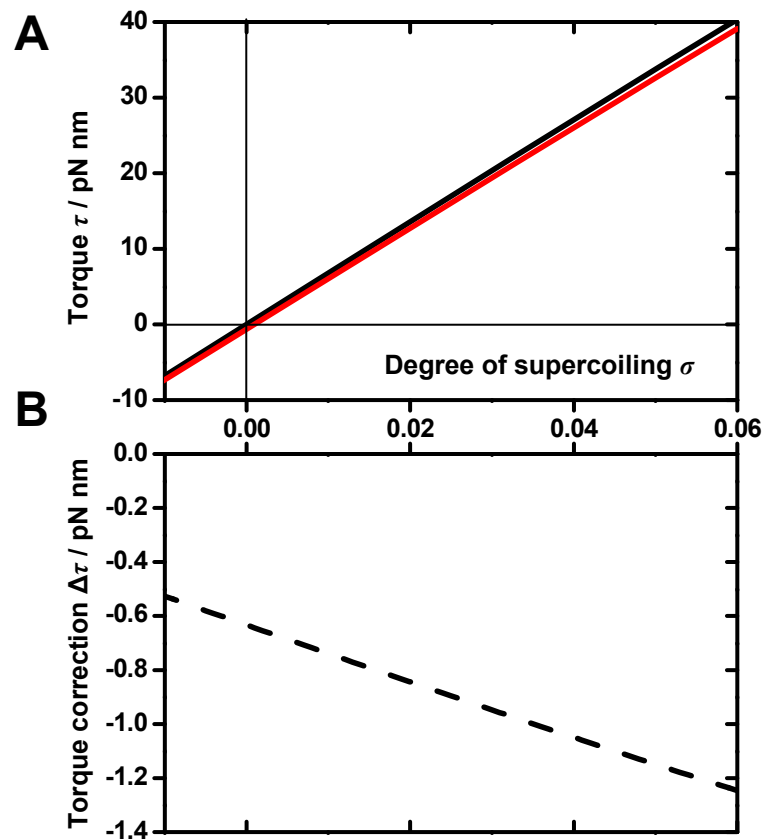# Supplementary Fig. 1

Supplementary Fig. 1 legend

- Effect of twist-stretch coupling on the location of the extension maximum σ_{z_max}. Values of σ_{z_max} have been numerically calculated from Equation (2) at three different forces: 1.9 pN (red), 7.7 pN (green) and 9.6 pN (blue).

Supplementary Fig. 2

Supplementary Fig. 2 legend

A) Effect of twist-stretch coupling on torque. According to Marko (1998), complete expression for the free energy of the DNA is

$$\frac{F}{kTL_0} = \frac{1}{A}\sqrt{\frac{Af}{kT} - \frac{1}{4}\left(C\omega_0\sigma + \frac{gf}{kT\gamma}\right)^2} + \frac{C}{2}\omega_0^2\sigma^2 - \frac{f}{kT} - \frac{1}{2\gamma}\left(\frac{f}{kT} - g\omega_0\sigma\right)^2 \quad \text{(A)}$$

Torque is equal to:

$$\tau = \frac{1}{\omega_0}\left.\frac{\partial(F/L_0)}{\partial\sigma}\right|_f = kT\omega_0\sigma\left(C - \frac{g^2}{\gamma}\right) + \frac{gf}{\gamma} - \frac{kTC}{4A}\cdot\frac{\left(C\omega_0\sigma + \frac{gf}{kT\gamma}\right)}{\sqrt{\frac{Af}{kT} - \frac{1}{4}\left(C\omega_0\sigma + \frac{gf}{kT\gamma}\right)^2}} \quad \text{(B)}$$

The figure represents torque calculated using Equation (B) with same parameters as used elsewhere for 9.6 pN of force (highest force used in our experiments) and g=0 (black) and our measured value of g=-21 (red).

B) Calculated difference between torques expected in the presence and absence of twist-stretch coupling (i.e., the difference between the red and black curves in A).