Supporting Information

Structural Destabilization of DNA Duplexes Containing Single Base Lesions Investigated by Nanopore Measurements.

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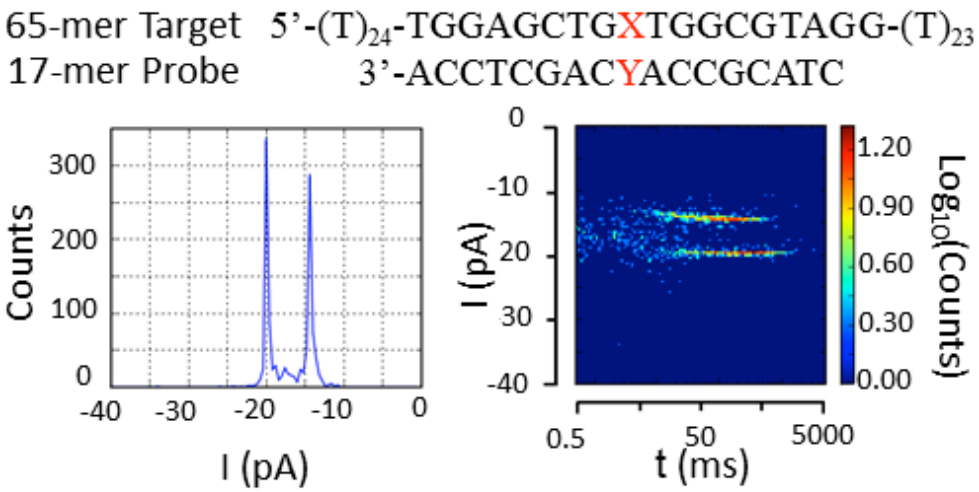
SI Table 1. Melting temperatures (T_m) for the duplexes employed in the main text.

65-mer: 5'-$(T)_{23}$-TTGGAGCTGXTGGCGTAGG-$(T)_{23}$

17-mer: 3'-ACCTCGACYACCGCATC

X:Y	T_m (°C)
G:C	70.3 ± 0.4
OG:C	69.3 ± 0.3
OG:D	68.7 ± 0.5
OG:A	67.8 ± 0.4
G:D	63.8 ± 0.3
G:A	62.6 ± 0.8
Sp:D	60.9 ± 1.4
Gh:D	58.3 ± 0.4
Sp:A	57.5 ± 0.4
Gh:A	57.3 ± 0.4
Sp:C	57.1 ± 1
Gh:C	55.9 ± 0.5

SI Figure 1. Histogram of current blockage levels for a duplex containing both 3'- and 5'-overhangs. The 65mer-17mer duplex can thread into the α-HL channel from either the 3'-$(T)_{23}$ overhang, or the 5'-$(T)_{24}$ overhang, generating distinct current blockage levels. (Left) Example histogram of current blockage levels (*I*) generated by the duplex containing X:Y = OG:C. (Right) Event density for the current blockage level (*I*) of the OG:C duplex as a function of unzipping duration (*t*). Previous work of our lab (Jin, Q., Fleming, A. M., Burrows, C. J., White, H. S. (2012) Unzipping kinetics of duplex DNA containing oxidized lesions in an α-hemolysin nanopore. *J. Am. Chem. Soc. 134*, 11006-11010.) have demonstrated that 3'-threading generates a deeper blockade than 5'-threading, and that the unzipping time constant (τ) via 3' and 5' entry are different.



SI Figure 2. Unzipping time constant τ at -120 mV as a function of melting temperature T_m for the 65mer-17mer duplexes containing different X:Y base pairs (X = G, OG, Sp, or Gh; Y = C, A, or D). Data shown for both 3' and 5' entry. Only the unzipping time constants for the Type I model are plotted. The base pairs corresponding to different T_m values are listed in SI Table 1.