

# Supplementary Material for “Discriminating protein tags on a dsDNA construct using a Dual Nanopore Device”

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## VIII. DWELL TIME DISTRIBUTIONS FOR THE NEUTRAL SIDECHAINS

In our simulation, we have implemented sidechains of different partial charges  $q_{tag}$  ranging from  $0.0q$  to  $0.5q$ . The Fig. S1 shows the cumulative dwell time distributions of the seven neutral sidechains for the voltage bias ( $V_L/V_R = 0.5$  for the  $L \rightarrow R$  and  $V_L/V_R = 2.17$  for the  $R \rightarrow L$  scans) matching with the experimental setup. Unlike the charged sidechains the asymmetry almost disappears as the sidechains no longer interact with the extended electric field.

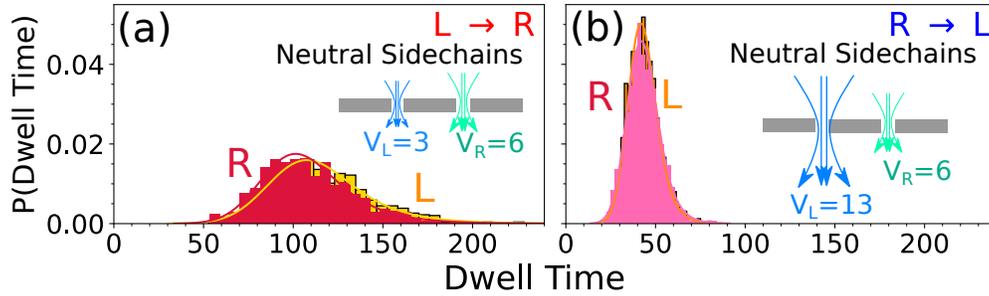


FIG. S1. Cumulative dwell time distributions of the neutral seven tags (sidechains) (a)  $L \rightarrow R$  and (b)  $R \rightarrow L$  scans. For the  $L \rightarrow R$  scans the left pore voltage is  $V_L = 3$  and right pore voltage is  $V_R = 6$  while for the  $R \rightarrow L$  translocations  $V_L = 13$  and  $V_R = 6$ . The yellow/red and the orange/magenta dwell time histograms are obtained from the left/right pore in  $L \rightarrow R$  and  $R \rightarrow L$  directions respectively. Schematics of the electrostatic forces on the DNA in the left/right pore are shown by the blue/green arrows (not to scale). The black envelopes represent the exponentially modified Gaussian distribution fit of the dwell time histograms.