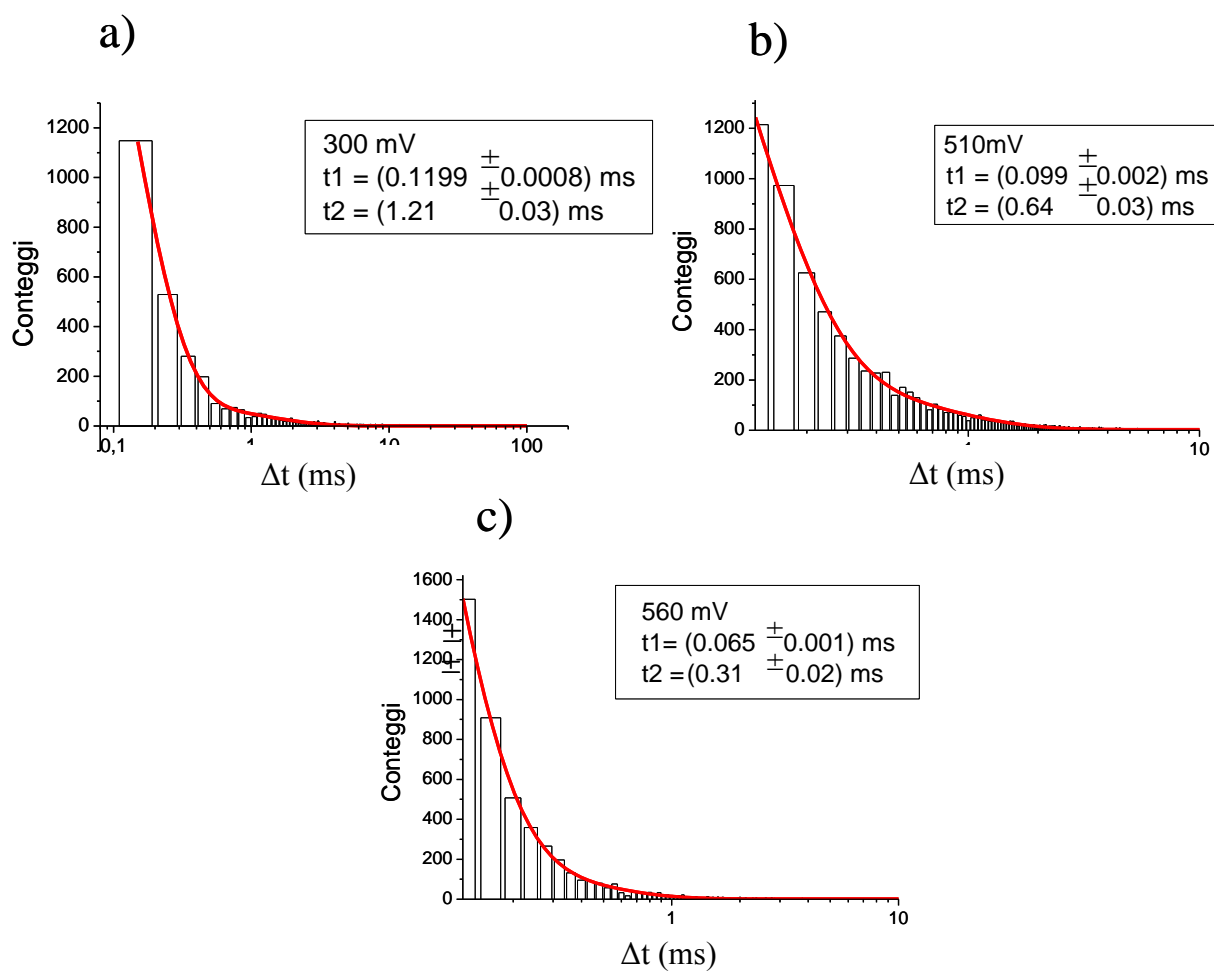


## SUPPLEMENTARY INFO

### *Event duration analysis*

Figures 1S.A, 1S.B, and 1S.C show the histograms related to the translocation time for different applied voltage bias obtained from the counter plot of figure 5. These data can be fitted with a bi-exponential curve instead of mono-exponential decay which can be related with DNA bumping events.



**Figure 1S.** Double exponential fit the events duration histograms for 300mV (a), 510 mV (b) and 560 mV(c).  $t_1$  and  $t_2$  are the time constants and are related respectively to bumping events and translocations events.