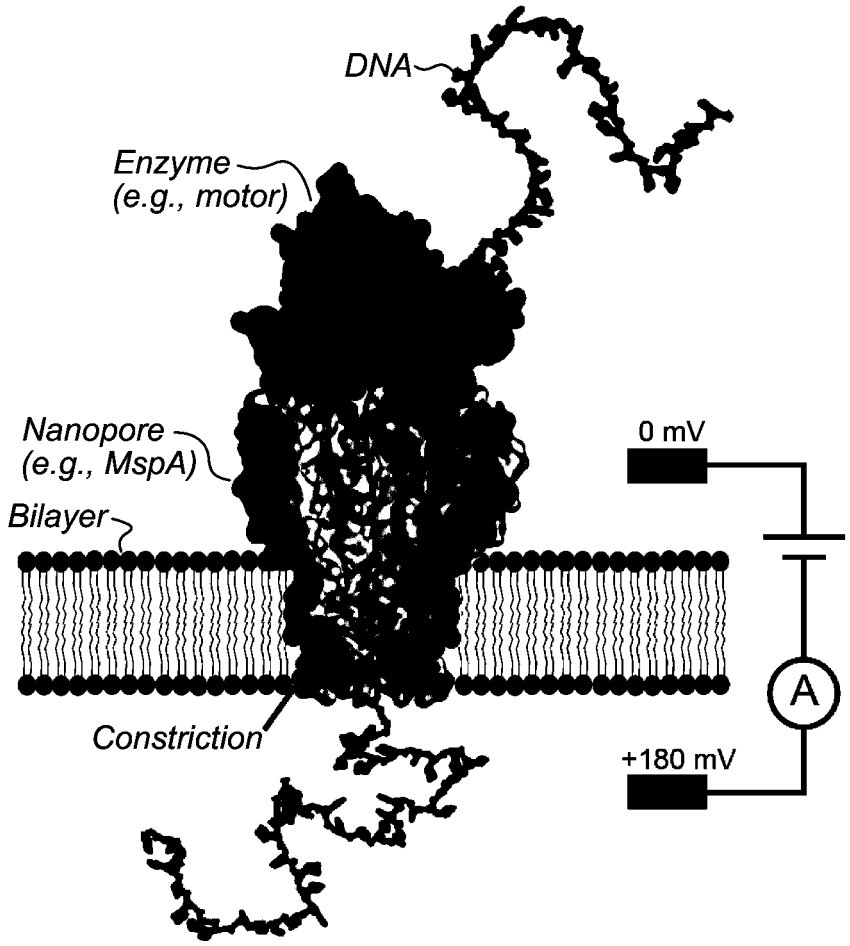

DNA
Enzyme
(e.g., motor)
Nanopore
(e.g., MspA)
Bilayer
Constriction
0 mV
+180 mV
A

FIG. 1A

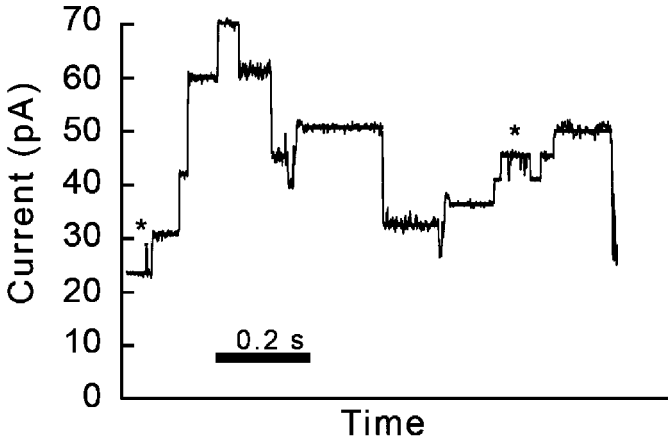

70
60
50
40
30
20
10
0
Current (pA)
0.2 s
Time

FIG. 1B

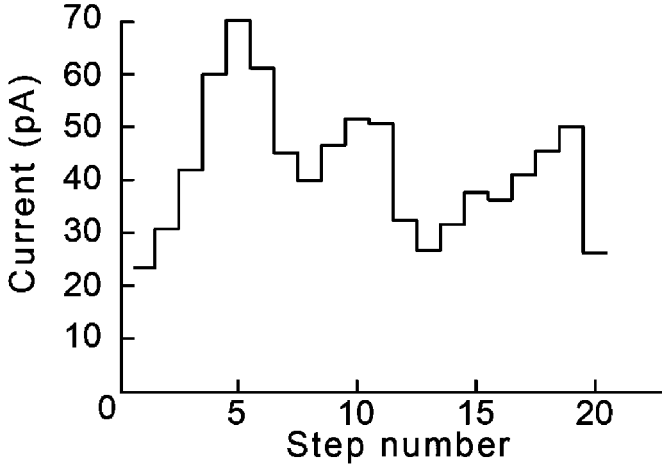

70
60
50
40
30
20
10
0
Current (pA)
5
10
15
20
Step number

FIG. 1C

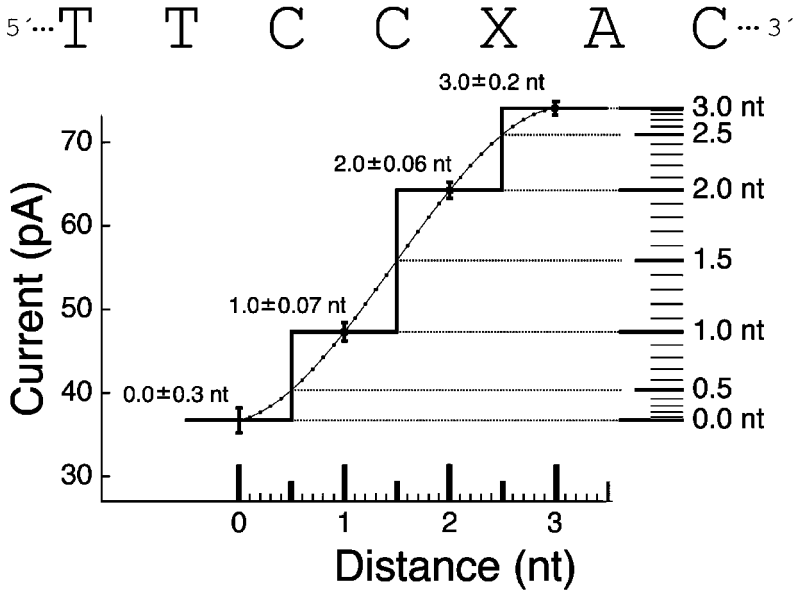

5´···T T C C X A C···3´
3.0±0.2 nt
2.0±0.06 nt
1.0±0.07 nt
0.0±0.3 nt
3.0 nt
2.5
2.0 nt
1.5
1.0 nt
0.5
0.0 nt
Current (pA)
70
60
50
40
30
0
1
2
3
Distance (nt)

*FIG. 2A*

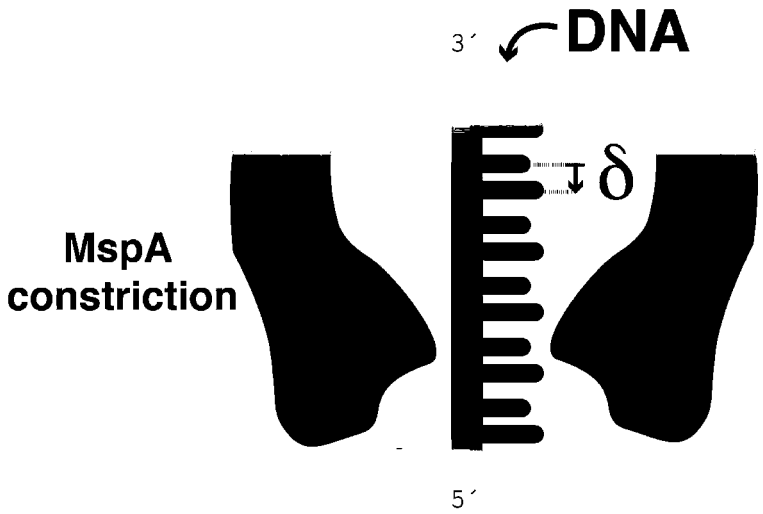

3´
DNA
δ
MspA
constriction
5´

*FIG. 2B*

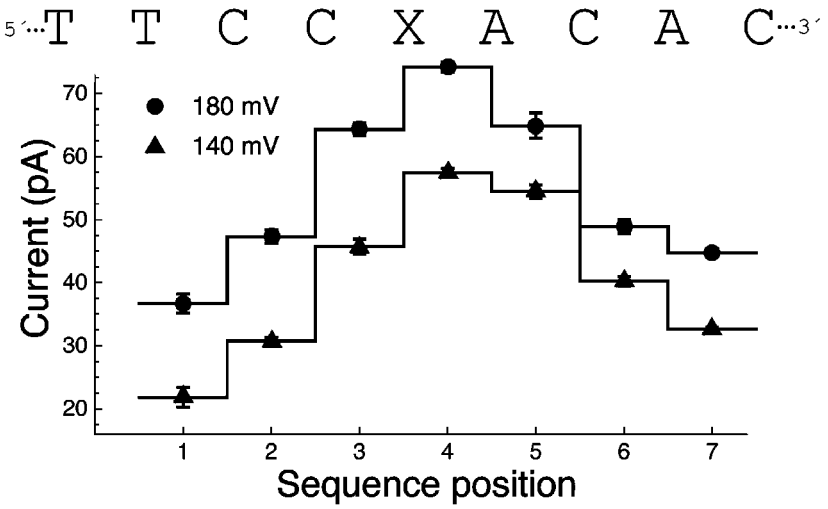

5′···T T C C X A C A C···3′
180 mV
140 mV
Current (pA)
Sequence position

FIG. 2C

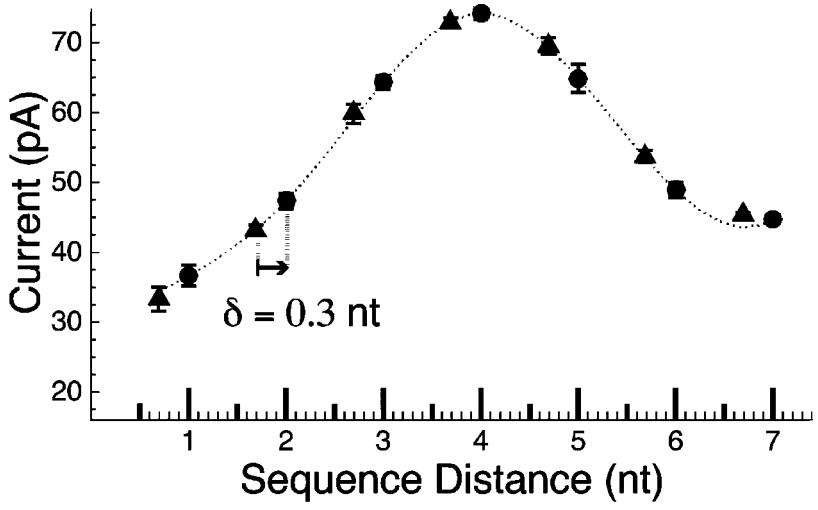

δ = 0.3 nt
Current (pA)
Sequence Distance (nt)

FIG. 2D

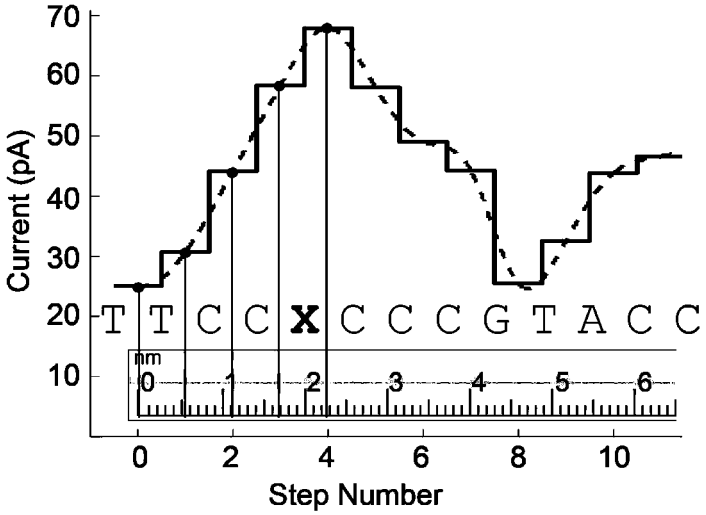

70
60
50
40
30
20
10
Current (pA)
T T C C X C C C G T A C C
nm
0 1 2 3 4 5 6
0 2 4 6 8 10
Step Number

*FIG. 2E*

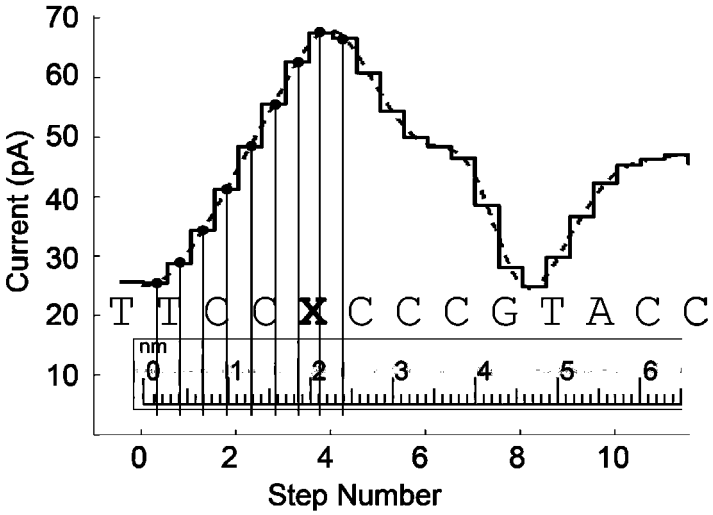

70
60
50
40
30
20
10
Current (pA)
T T C C X C C C G T A C C
nm
0 1 2 3 4 5 6
0 2 4 6 8 10
Step Number

*FIG. 2F*

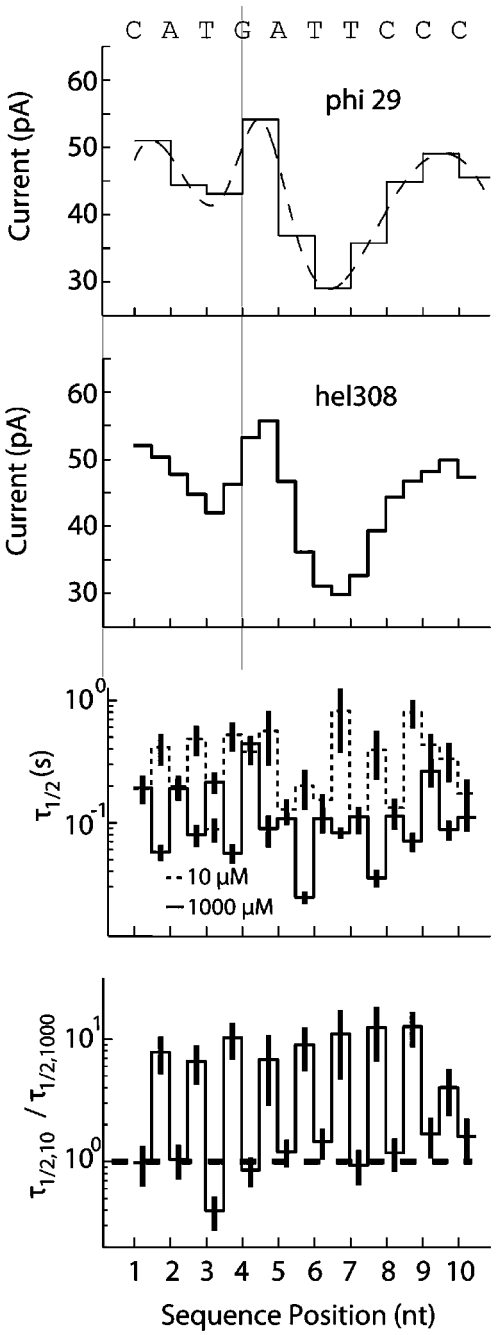



***FIG. 3A***

***FIG. 3B***

***FIG. 3C***

***FIG. 3D***

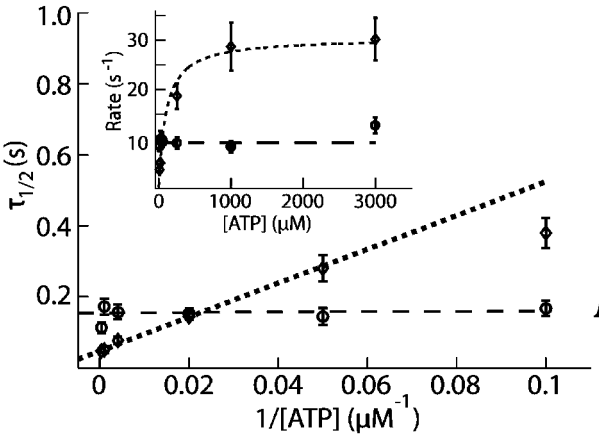



FIG. 3E

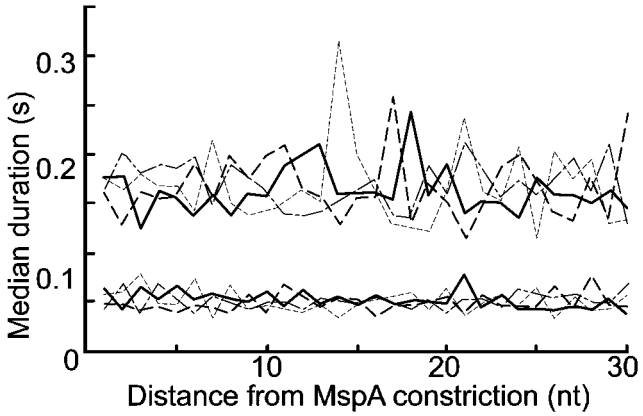



FIG. 3F

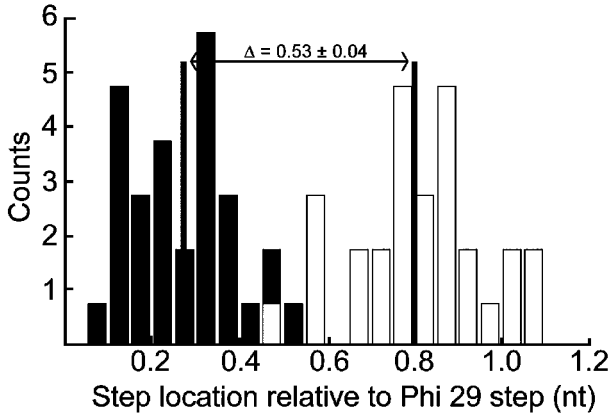



FIG. 3G