Figure 1

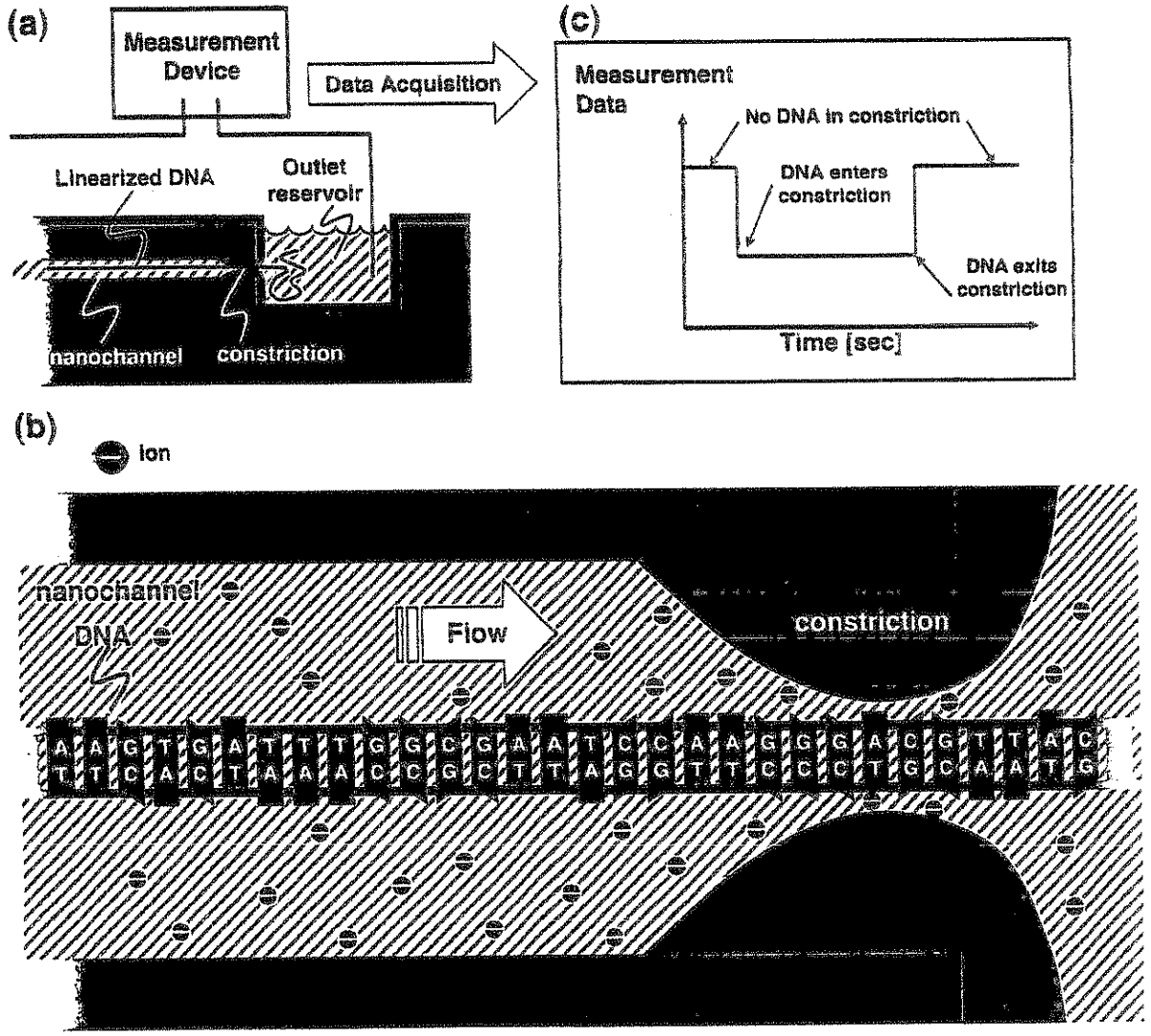

(a)
Measurement Device
Data Acquisition
Linearized DNA
Outlet reservoir
nanochannel
constriction
(c)
Measurement Data
No DNA in constriction
DNA enters constriction
DNA exits constriction
Time [sec]
(b)
Ion
nanochannel
DNA
Flow
constriction

Figure 2

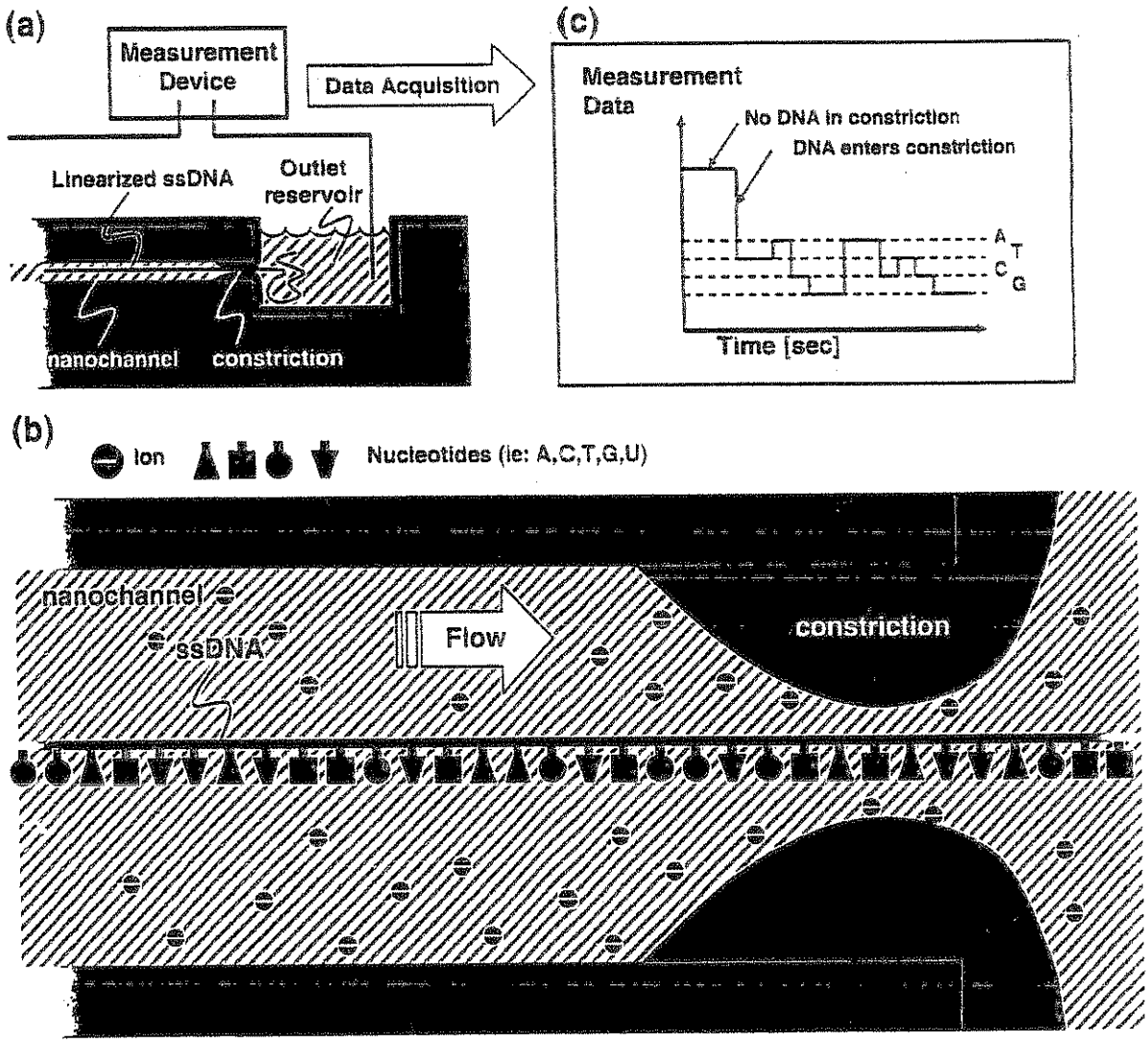

(a)
Measurement Device
Data Acquisition
Linearized ssDNA
Outlet reservoir
nanochannel
constriction
(c)
Measurement Data
No DNA in constriction
DNA enters constriction
A
T
C
G
Time [sec]
(b)
Ion
Nucleotides (ie: A,C,T,G,U)
nanochannel
ssDNA
Flow
constriction

Figure 3

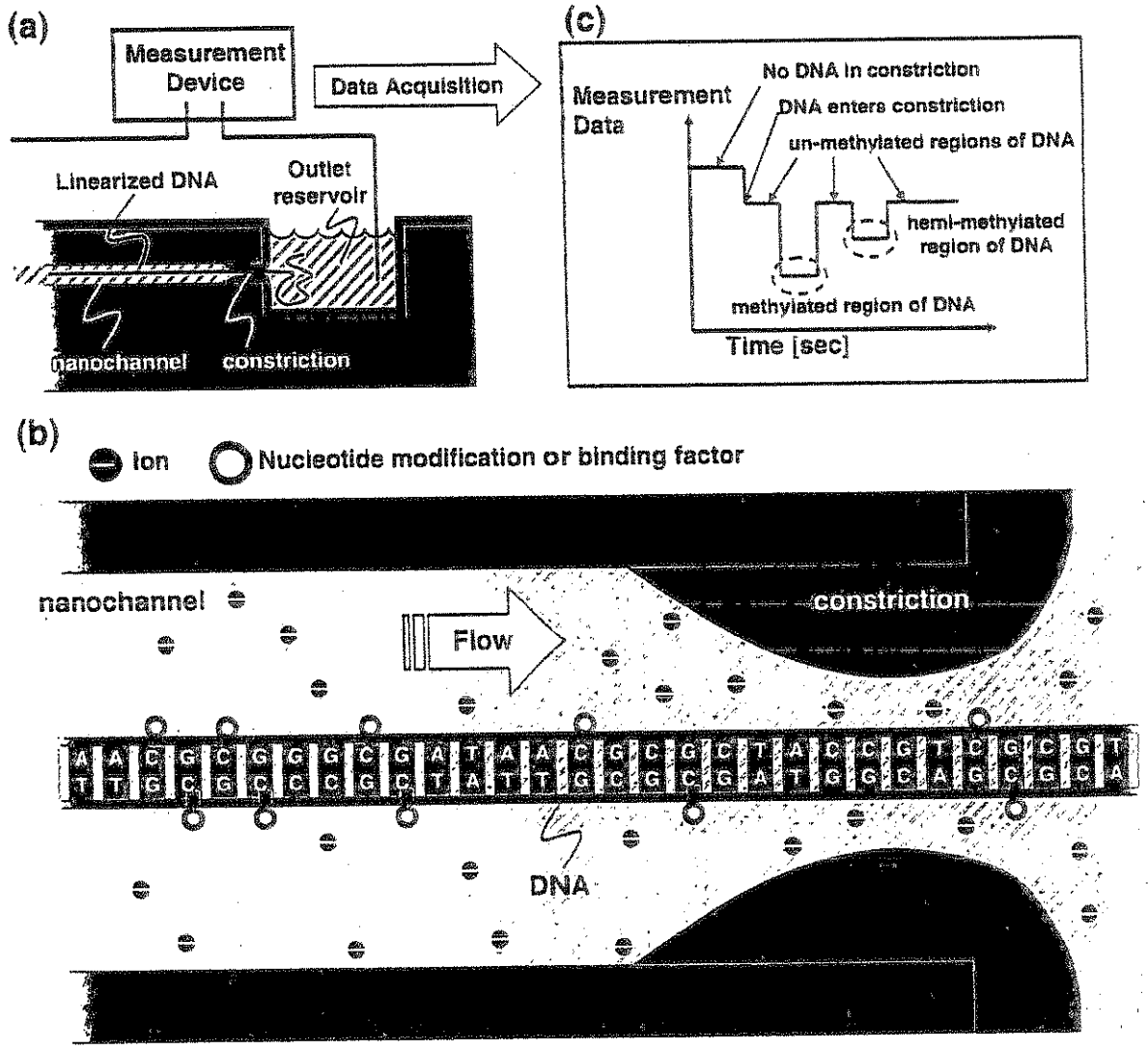

(a)
Measurement Device
Data Acquisition
Linearized DNA
Outlet reservoir
nanochannel
constriction
(c)
Measurement Data
No DNA in constriction
DNA enters constriction
un-methylated regions of DNA
hemi-methylated region of DNA
methylated region of DNA
Time [sec]
(b)
Ion
Nucleotide modification or binding factor
nanochannel
constriction
Flow
DNA

Figure 4

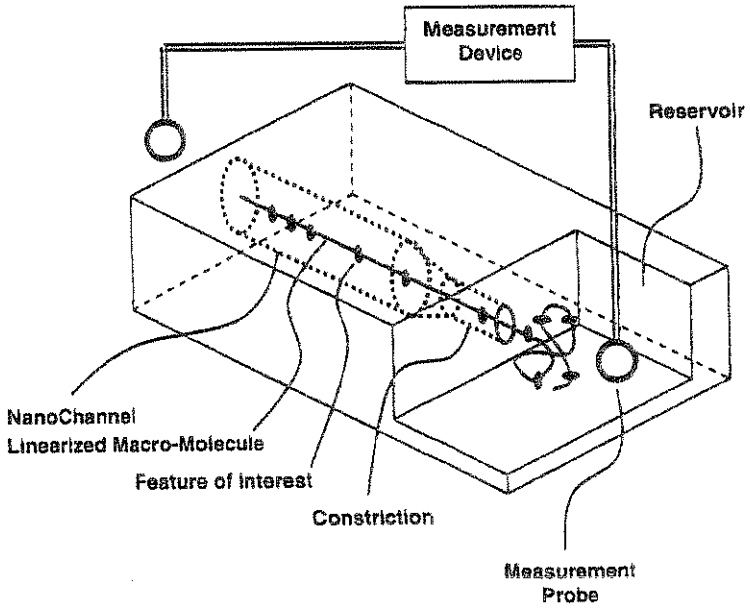

Measurement Device
Reservoir
NanoChannel
Linearized Macro-Molecule
Feature of Interest
Constriction
Measurement Probe

Figure 5

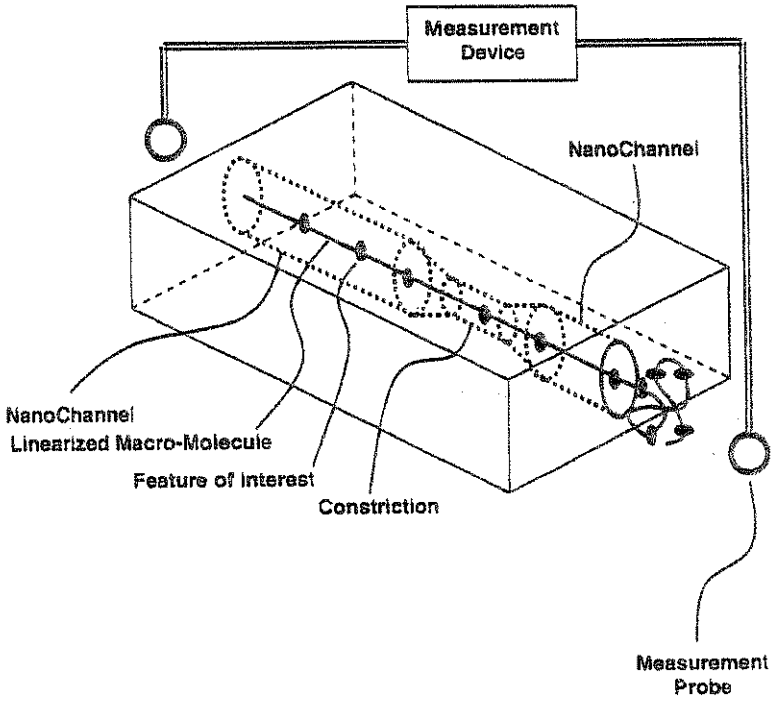

Measurement Device
NanoChannel
NanoChannel
Linearized Macro-Molecule
Feature of Interest
Constriction
Measurement Probe

Figure 6

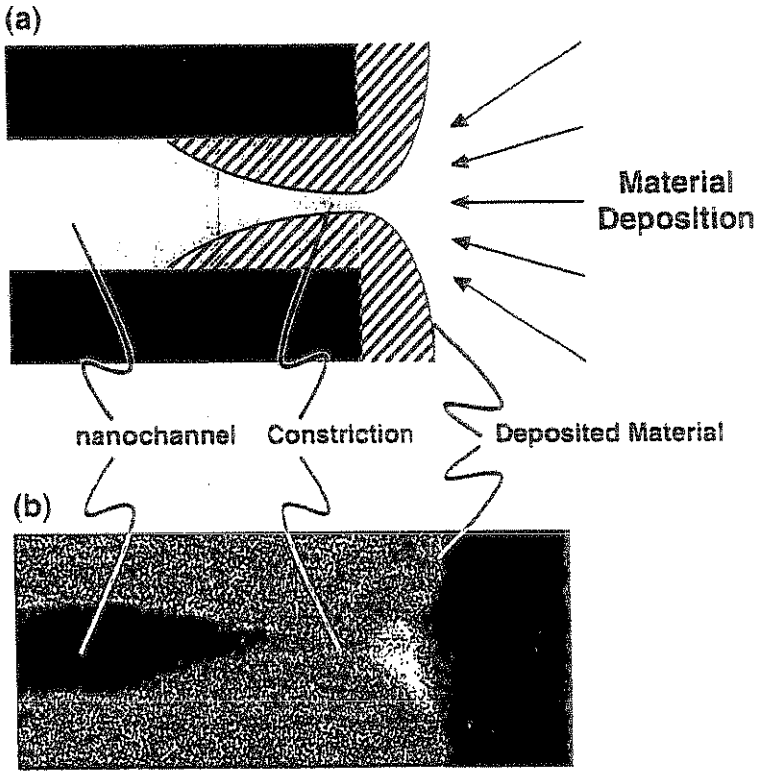

(a)
Material
Deposition
nanochannel
Constriction
Deposited Material
(b)

Figure 7

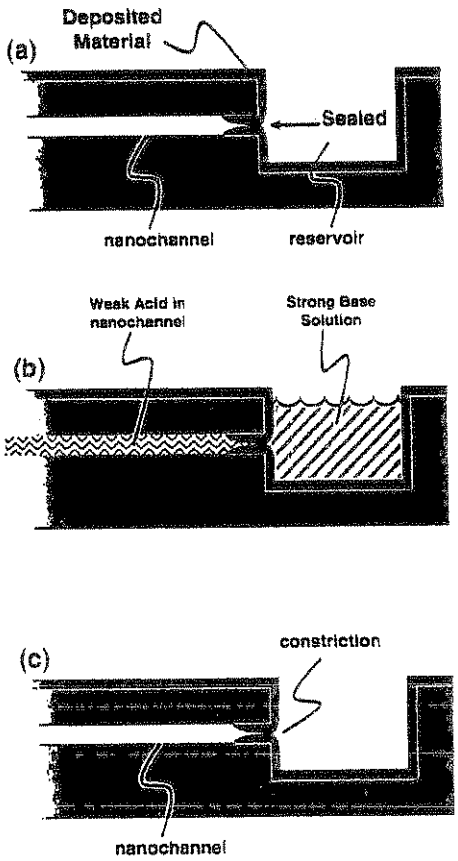

(a)
Deposited Material
Sealed
nanochannel
reservoir
(b)
Weak Acid in nanochannel
Strong Base Solution
(c)
constriction
nanochannel

Figure 8

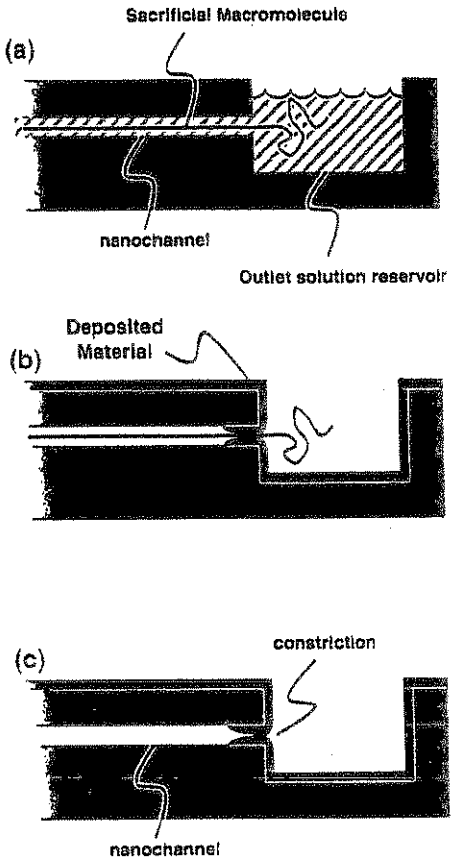

Sacrificial Macromolecule
(a)
nanochannel
Outlet solution reservoir
Deposited
Material
(b)
constriction
(c)
nanochannel

Figure 9

