② PairWise sequence alignment / /

Local Sequence alignment

(2-a) Smith Waterman Algo

① initialization ② Iteration ③ Termination

ex X = TACTAA Match = 1 Gap = -2
y = TAATA Mismatch = -1

Matrix = 7X6

y \ X	0	T 1	A 2	C 3	T 4	A 5	A 6
0	0	0	0	0	0	0	0
T 1	0	1	0	0	1	0	0
A 2	0	0	2	0	0	2	1
A 3	0	0	1	1	0	1	3 (b)
T 4	0	0	0	0	2	0	1
A 5	0	0	1	0	0	3 (a)	1

init → F(0,j) = F(i,0) = 0

الصف والعمود الأول = صفر

iteration

X —M/mis→ ? ← gap
y —gap→ ?
↓
Max
↓
X (-ve) لو طلعت قيمة
↓
0 = نحطها

(T,T) = (1,1) = up = 0 + -2 = -2
left = 0 + -2 = -2
diag. = 0 + 1 = 1 → #

Termination
↳ best local alignment
$F_{opt} = \max_{ij} F(i,j)$

⇒

a) 3, 2, 1, 2, 1, 1, 0

↓

TACTA
TAATA

Rules

diag. → ترتيب
up → ① Gap ② lett
left → ① lett ② Gap

b) 3, 2, 1, 0

TAA
TAA

Scanned with CamScanner