

② Calculate DP matrix and Global Alignment for DNA seqs GAATTC and GATTA

• Assume: needleman Wunsch

Scoring

match: +2

mismatch: -1

gap: -2

		G	A	A	T	T	C
D		-2	-4	-6	-8	-10	-12
G	-2	2	0	-2	-4	-6	-8
A	-4	0	4	2	0	-2	-4
T	-6	-2	2	3	4	2	0
T	-8	-4	0	1	5	6	4
A	-10	-6	-2	2	3	4	5

Alignment: G A A T T C
 G - A T T A

Score = +2 -2 +2 +2 +2 -1

= 5

③ compute global (N-W) and local (S-W) alignments of SCION_S and CONSCIENCES

matches: +4 ; mismatches: -3 ; gap: -3

global:

	C	D	N	S	C	I	E	N	C	E	S
D	-3	-6	-9	-12	-15	-18	-21	-24	-27	-30	-33
S	-3	-3	-6	-9	-5	-8	-11	-14	-17	-20	-23
C	-6	1	-2	-5	-8	-1	-4	-7	-10	-13	-16
I	-9	-2	-2	-5	-8	-4	3	0	-3	-6	-9
E	-12	-5	2	-1	-4	-7	0	-3	-6	-9	-12
N	-15	-8	-1	6	3	0	-3	-3	4	1	-2
S	-18	-11	-4	3	10	7	4	1	1	-2	2

CONSCIENCES
 --- SCION ---
 Score: -3 -3 -3 +4 +4 +4 -3 +4 -3 -3 +4
 = 2

local:

	C	D	N	S	C	I	E	N	C	E	S
D	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	4	1	0	0	0	0	0	4
C	0	4	1	0	8	5	2	0	4	1	0
I	0	1	1	0	5	12	9	6	3	1	0
E	0	0	5	2	2	9	9	6	3	0	0
N	0	0	2	9	6	3	6	6	13	10	7
S	0	0	0	6	13	10	7	4	10	7	11

C - O N S | C
 C I O N S

score = +13

N | S C I E N | C
 S C I O N S

score = +13