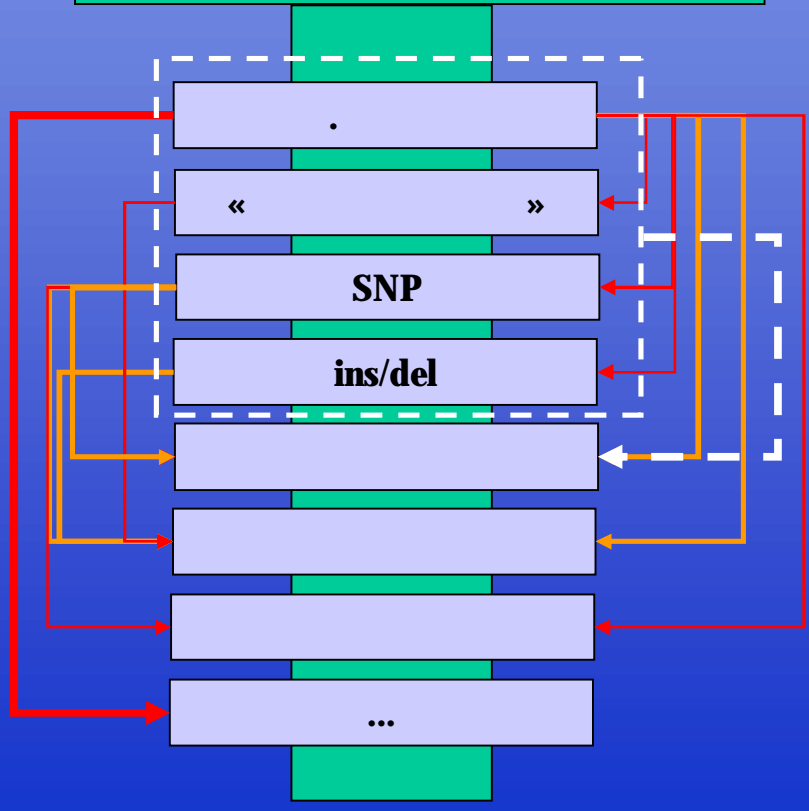
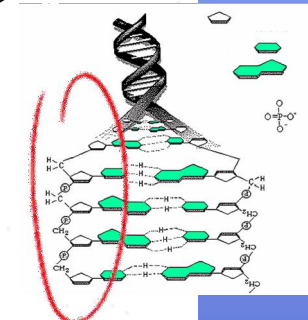
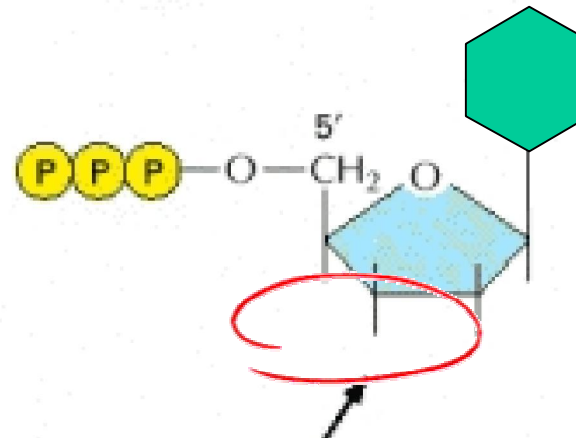
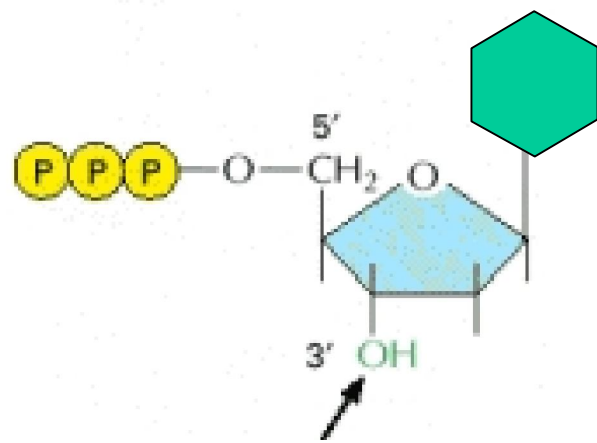
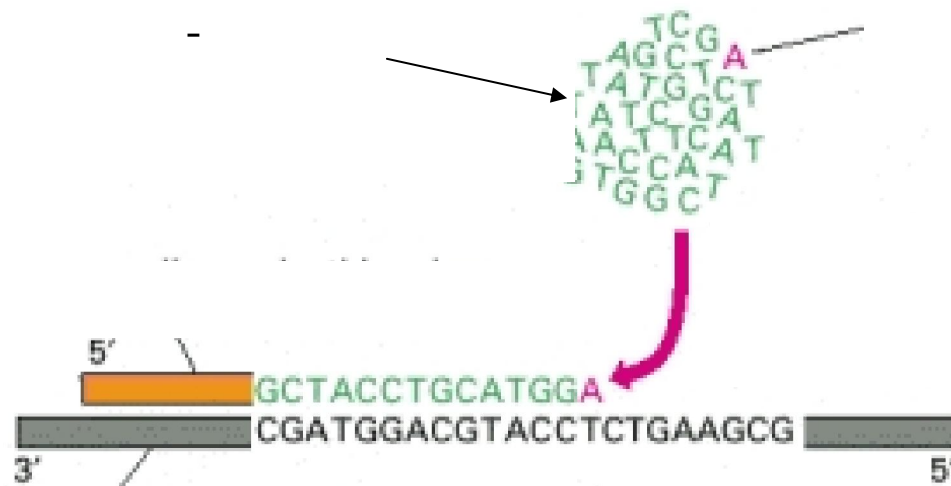


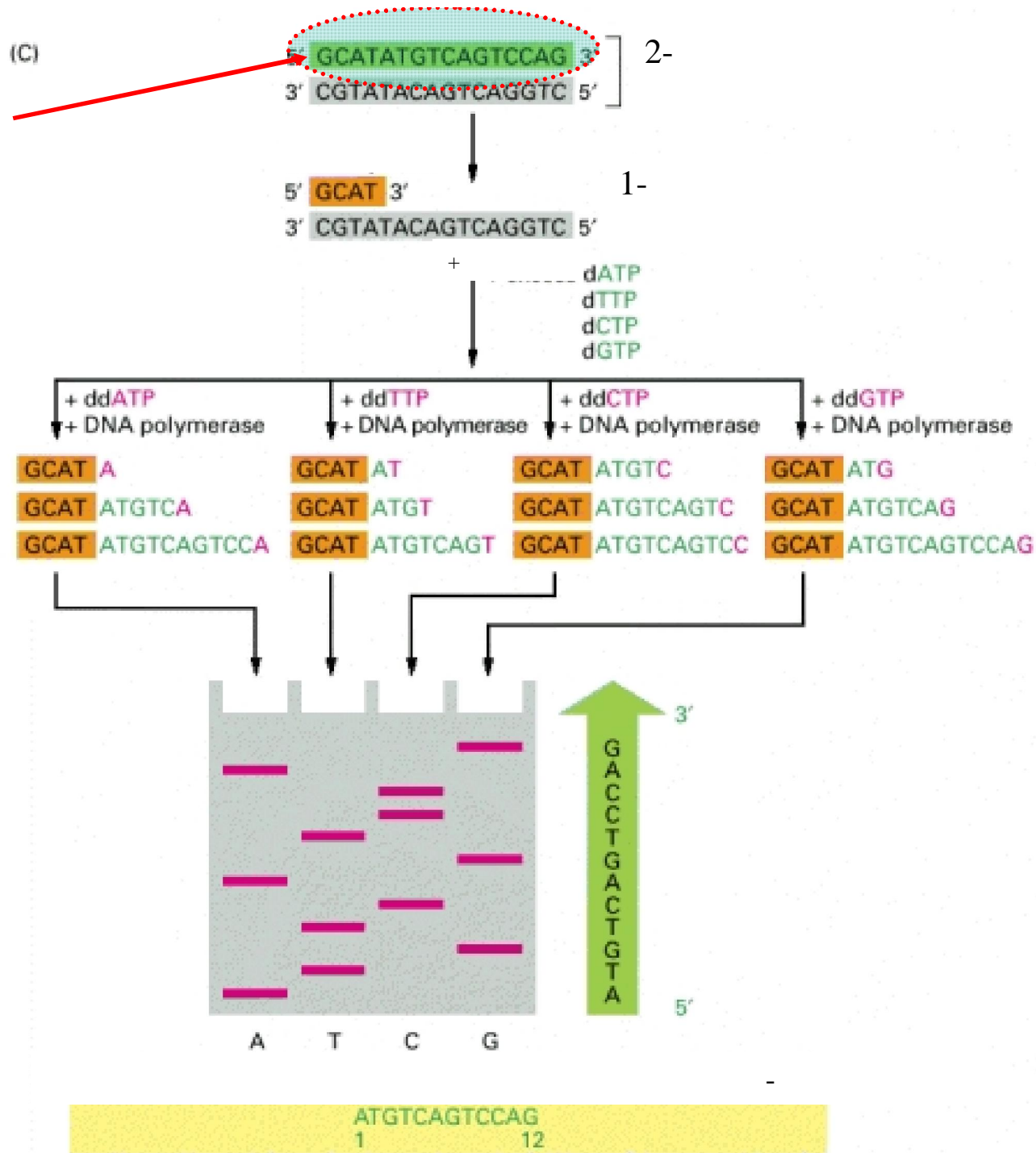
«1D > 1D »





()



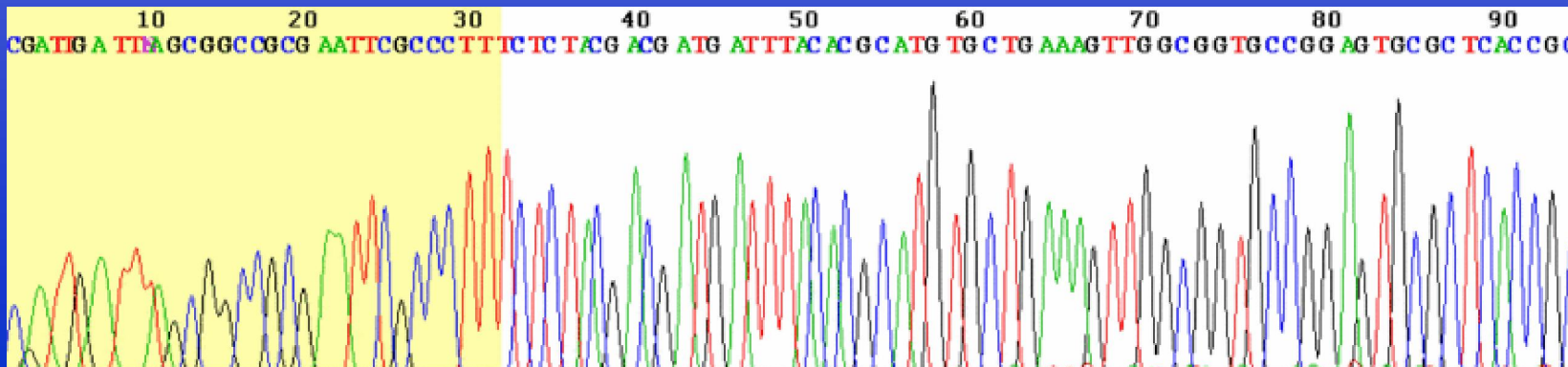
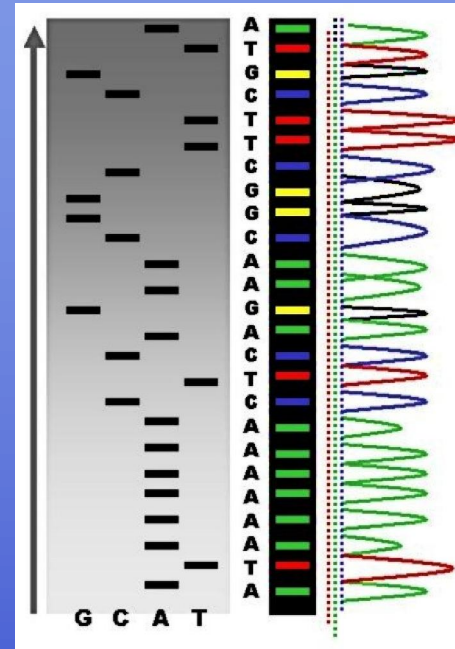


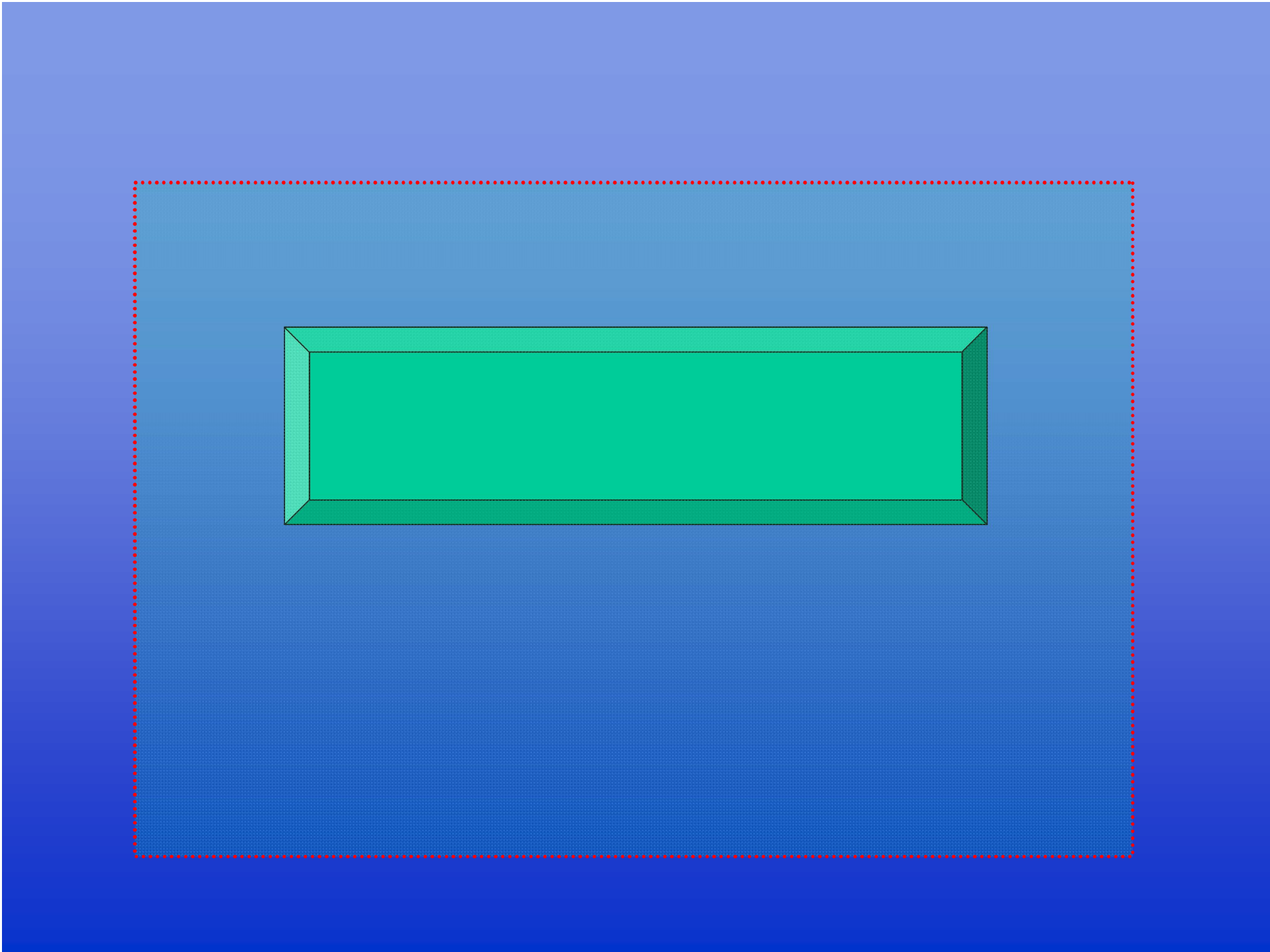
•

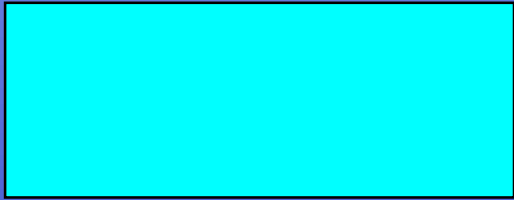
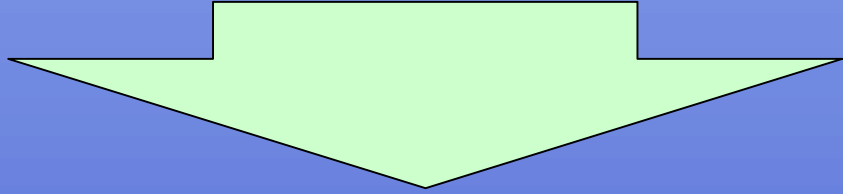
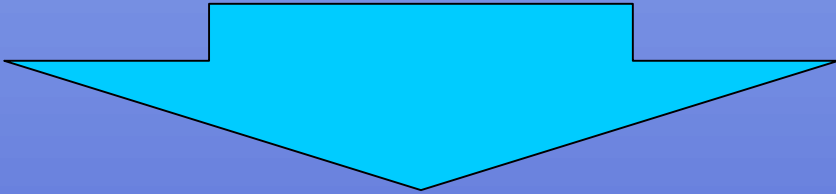
10^{-9}

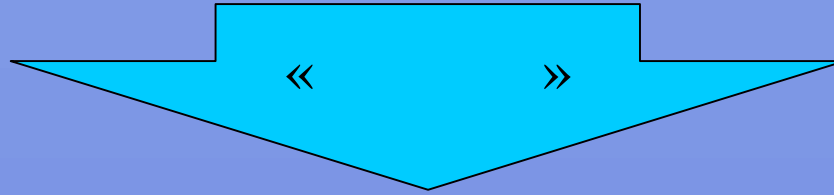
•

$10^{-3}..10^{-5}$





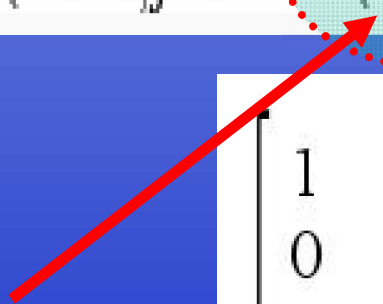




$$\left. \begin{array}{l} F_{0j} = d * j \\ F_{i0} = d * i \end{array} \right\} d -$$

/

$$F_{ij} = \max(F_{i-1,j-1} + S(A_i, B_j), F_{i,j-1} + d, F_{i-1,j} + d)$$


$$\begin{bmatrix} 1 & 0 & 0 & \dots & 0 \\ 0 & 1 & 0 & \dots & 0 \\ 0 & 0 & 1 & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & 0 & \dots & 1 \end{bmatrix}$$

$$F_{ij} = \max(F_{i-1,j-1} + S(A_i, B_j), F_{i,j-1} + d, F_{i-1,j} + d)$$

$$S(A,A)=+2, S(A,B)=-1, d=-1$$

	i	A	B	C	N	J	R	Q	C	L	C	R	P	M
j	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13
A	-1	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
J	-2	1	1	0	-1	1	0	-1	-2	-3	-4	-5	-6	-7
C	-3	0	0	2	1	0	-1	1	0	-1	-2	-3	-4	-4
J	-4	-1	-1	2	2	4	3	2	1	0	-1	-2	-3	-4
N	-5	-2	-2	1	4	3	3	2	1	0	-1	-2	-3	-4
R	-6	-3	-3	0	3	3	5	4	3	2	1	1	0	-1
C	-7	-4	-4	-1	2	2	4	4	6	5	4	3	2	1
K	-8	-5	-5	-2	1	1	3	3	5	5	4	3	2	1
C	-9	-6	-6	-3	0	0	2	2	5	4	7	6	5	4
R	-10	-7	-7	-4	-1	-1	2	1	4	4	6	9	8	7
B	-11	-8	-8	-5	-2	-2	1	0	3	3	5	8	8	7
P	-12	-9	-9	-6	-3	-3	0	-1	2	2	4	7	10	9

```

AlignmentA ← ""
AlignmentB ← ""
i ← length(A)
j ← length(B)
while (i > 0 and j > 0)
{
  Score ← F(i,j)
  ScoreDiag ← F(i - 1, j - 1)
  ScoreUp ← F(i, j - 1)
  ScoreLeft ← F(i - 1, j)
  if (Score == ScoreDiag + S(A(i), B(j)))
  {
    AlignmentA ← A(i-1) + AlignmentA
    AlignmentB ← B(j-1) + AlignmentB
    i ← i - 1
    j ← j - 1
  }
  else if (Score == ScoreLeft + d)
  {
    AlignmentA ← A(i-1) + AlignmentA
    AlignmentB ← "-" + AlignmentB
    i ← i - 1
  }
  otherwise (Score == ScoreUp + d)
  {
    AlignmentA ← "-" + AlignmentA
    AlignmentB ← B(j-1) + AlignmentB
    j ← j - 1
  }
}
while (i > 0)
{
  AlignmentA ← A(i-1) + AlignmentA
  AlignmentB ← "-" + AlignmentB
  i ← i - 1
}
while (j > 0)
{
  AlignmentA ← "-" + AlignmentA
  AlignmentB ← B(j-1) + AlignmentB
  j ← j - 1
}

```

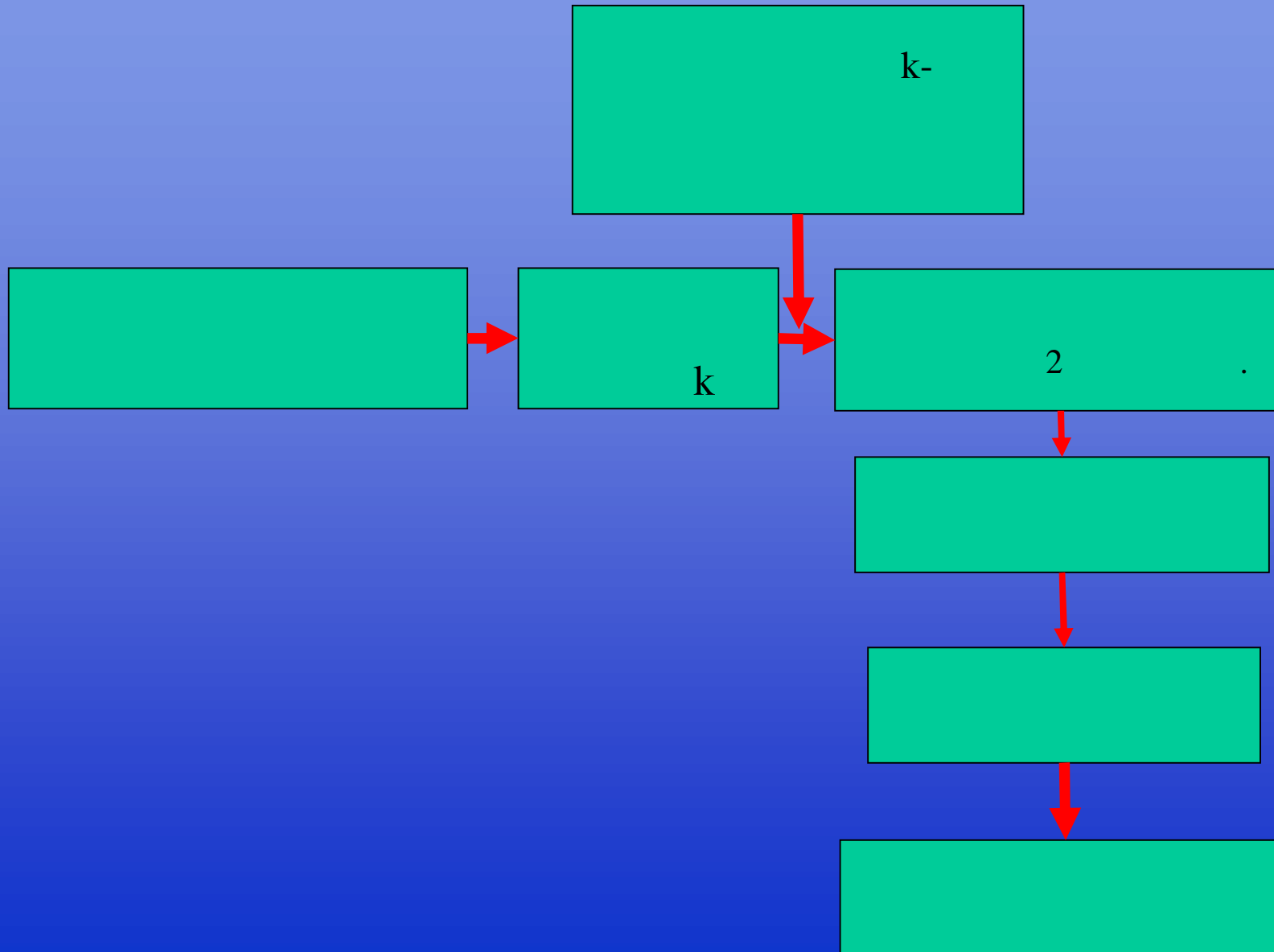
A	B	C	N	J		R	Q	C	L	C	R		P	M
A	J	C		J	N	R		C	K	C	R	B	P	

$$2-1+2-1+2-1+2-1+2-1+2+2-1+2-1=9$$

A	B	C		N	J	R	Q	C	L	C	R		P	M
A	J	C	J	N		R		C	K	C	R	B	P	

$$2-1+2-1+2-1+2-1+2+2-1+2-1=9$$

BLAST (Basic Local Alignment Search Tool)



2.

-

k-

-

(high scoring segment pair,

HSP)

–

k-

```
. (Q)  E R P P Q G L F
      (DB)  E D P P E G V V
                L → k-
      -2 7 7 2 6 1 -1
                L → HSP
```

3.

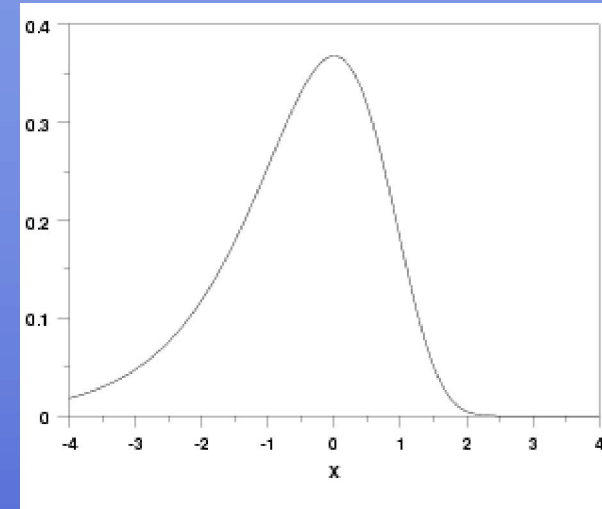
- - $S > S$,

- - E -

- , K, H -
- m' , n' -

-
D
(0.318, 0.13, 0.4)

Q DB



$$p(S \geq x) = 1 - \exp\left(-e^{-\lambda(x-\mu)}\right)$$

$$\mu = \lceil \log(Km'n') \rceil / \lambda$$

$$m' \approx m - (\ln Kmn) / H$$

$$n' \approx n - (\ln Kmn) / H$$

$$E \approx 1 - e^{-p(s>x)D}$$

?

•

•

,

,

•

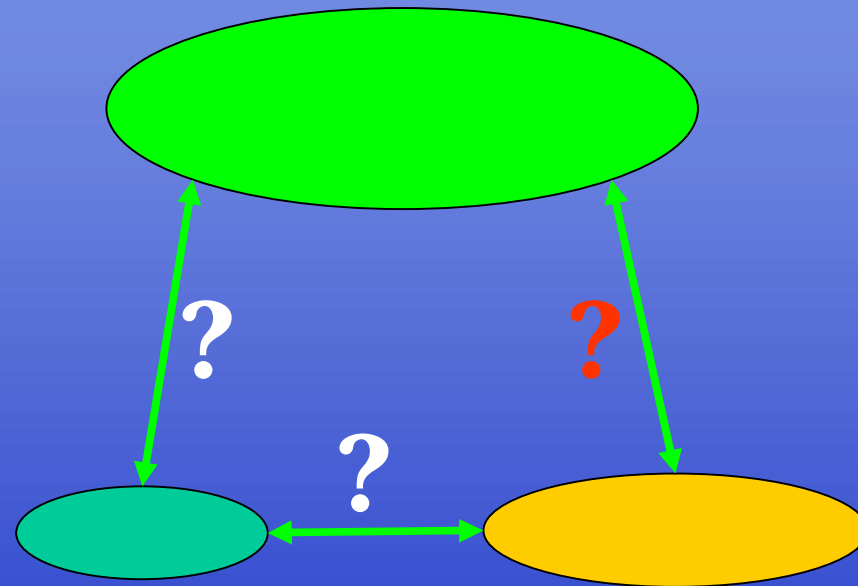
1D

1D

,

1D

()



SNP 1D >
1D > 1D

1D > ...

