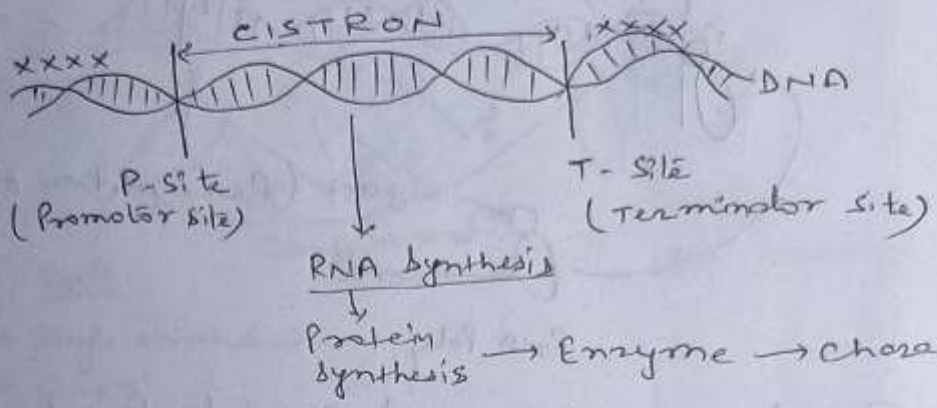
TRANSCRIPTION

(Coding) → DNA dependant RNA synthesis.

(1) RNA synthesis is template dependant.



RNA synthesis

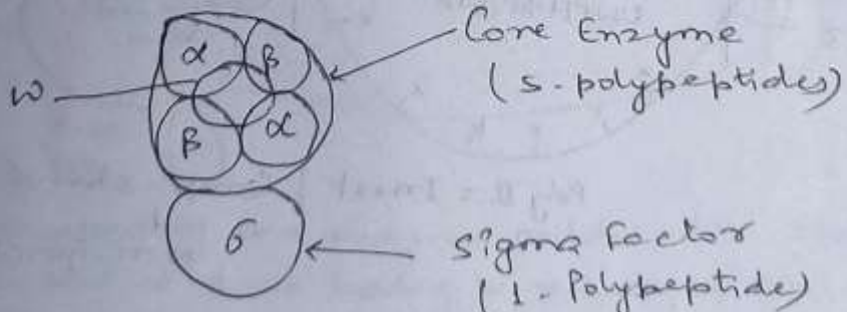
↓

Protein synthesis → Enzyme → Characters.

CISTRON (By Benzer)

- Cistron is the unit of function.
- A segment of DNA which is used as template to control RNA synthesis.
- Area of DNA located between P-site and T-site which is used to control Transcription.

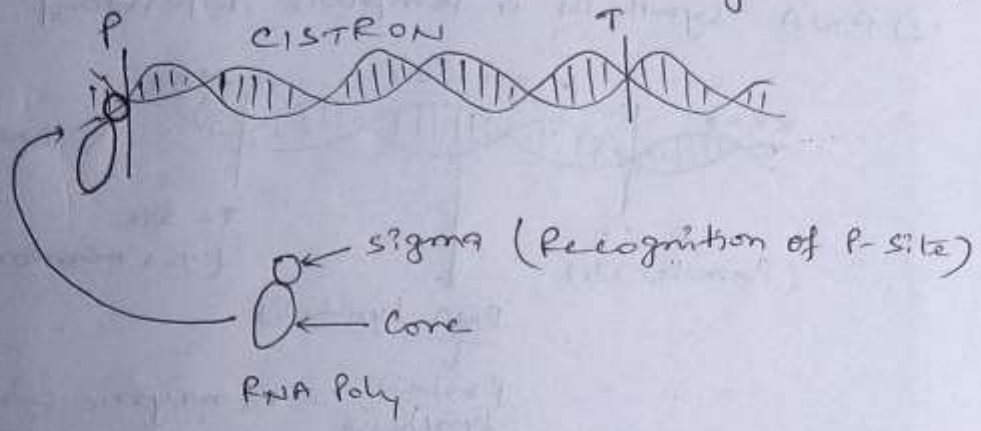
(2) RNA synthesis also requires catalyst → RNA Polymerase (A group of Polypeptides.



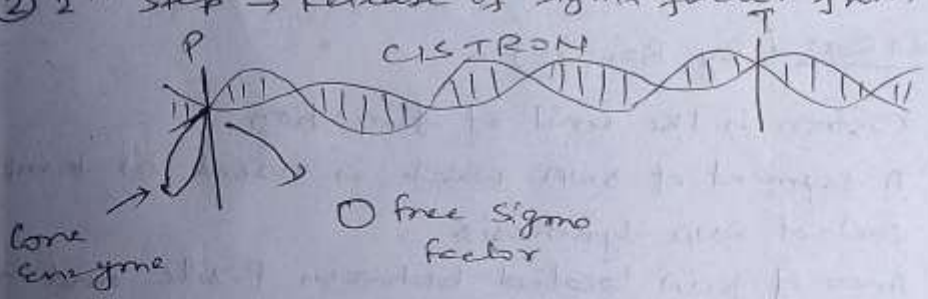
$$\left\{\frac{\alpha - \alpha - \beta - \beta - W}{\sigma}\right\} \rightarrow \text{RNA Poly.}$$

Division of labour → RNA Synthesis

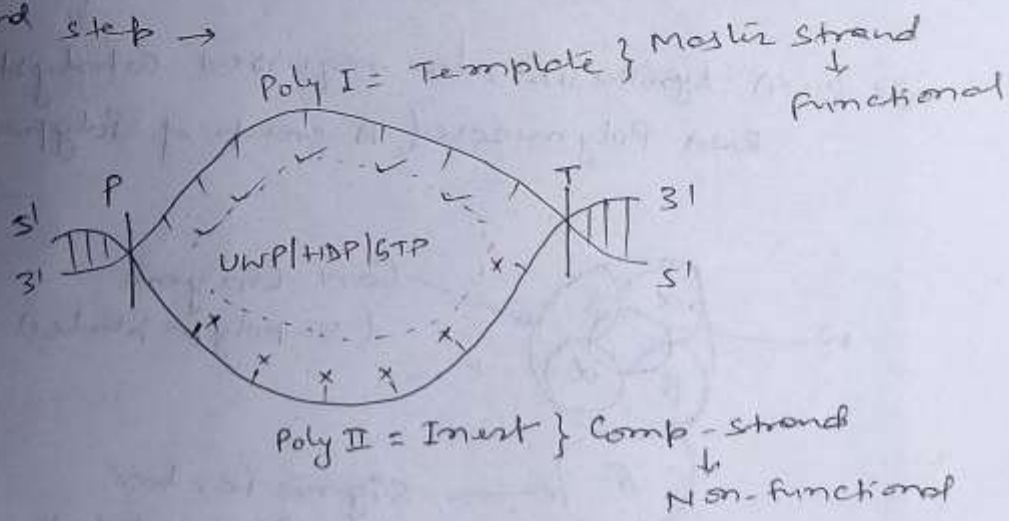
① 1st step → Initiation → RNA Poly binds on P-site



② 2nd step → Release of sigma factor from P-site

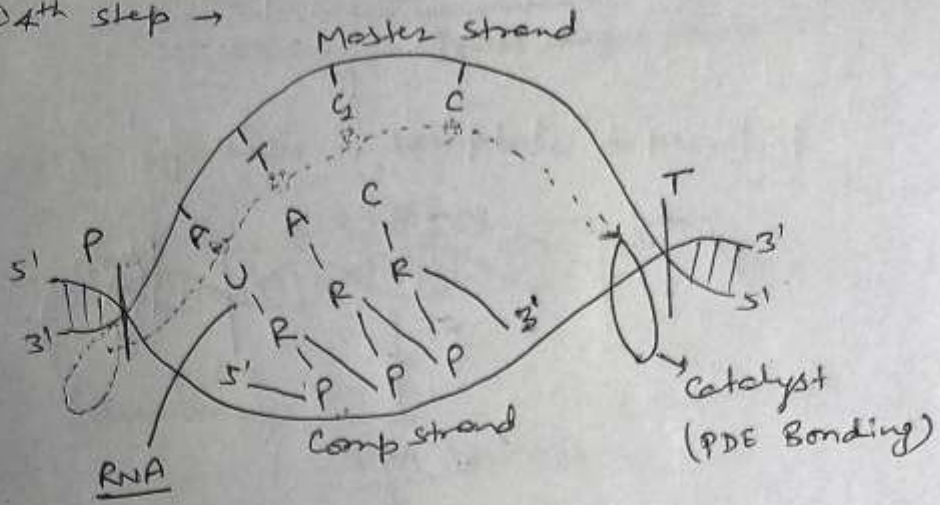


③ 3rd step →



- The two strands of DNA are separated in the cistron area.
- Only one strand of DNA is used as template during transcription (Master strand)

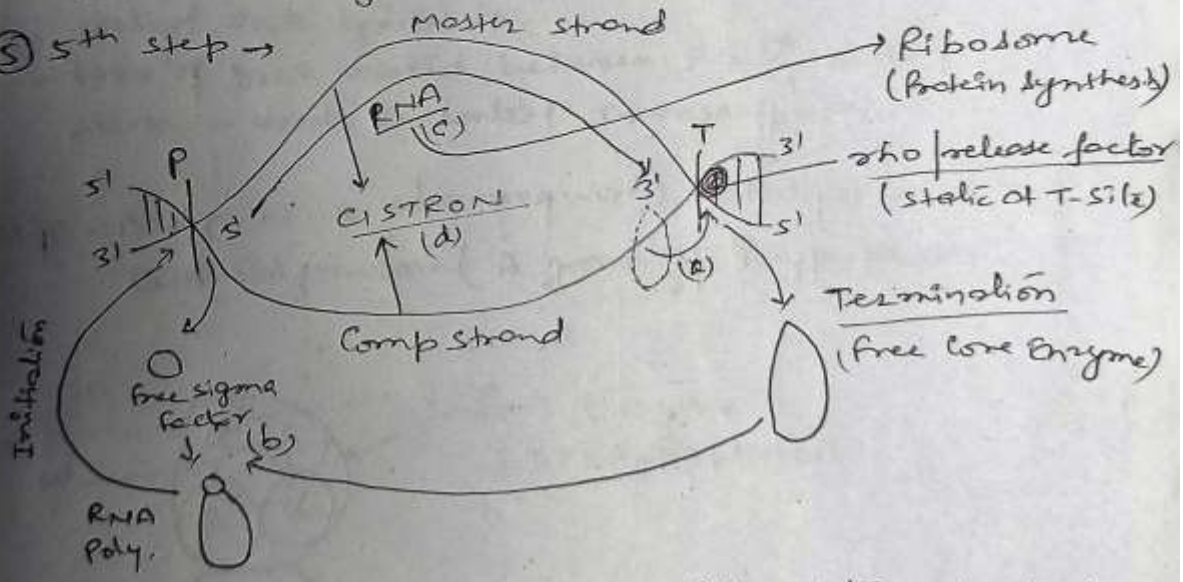
④ 4th step →



→ Single stranded
→ 5' → 3'
→ Base sequence = Comp. to Master strand

⇒ RNA is synthesized through joining of nucleotides through PDE bonds due to catalytic action of the core enzyme.

⑤ 5th step →



a) The moving core enzyme collides with static rho factor located at T-site leading to release of core enzyme and Termination of RNA synthesis.

b) Core-enzyme recombins with sigma factor to restore the RNA polymerase.

c) RNA is transported towards Ribosome to control Protein synthesis.

d) The two strands of DNA combine to restore the CISTRON.

Dr. Navi Ranjan
Dept of Botany, M. V. College, Buxar