

# Signal Sequences

Signal sequences are short, several-nucleotide sequences with very specific information. They are very important for the function of nucleic acids.

## Basic information

### Break Down

- the sequence marking the start of replication (in the D loop of mitochondrial DNA ),
- sequences controlling transcription (located before, after or even inside the region they control).
- Previously discovered, they were named after the discoverers Hogness (eukaryote), Pribnow (prokaryote), TATA box (allows transcription to start from adenine surrounded by a group of pyrimidine bases, located approx. 30 nucleotides after TATA in the direction from 5' to 3'). Adenine with a group of pyrimidine bases forms a so-called starting nucleotide (+1)

### Functions

- important for the formation of the mRNA cap (a sequence of 5 nucleotides after the starting nucleotide CATTC) and the signal for polyadenylation of the mRNA end AATAAA,
- ensure the uncoupling and joining of DNA at predetermined locations,
- they have the ability to change the spatial arrangement and apply their information content - so-called palindromes completely, incomplete palindromes (only partially complementary).

## Moderately repetitive sequence

It is found singly or in groups scattered throughout the genome. They are transcribed into RNA , but their function is not yet precisely known.

They can be long or short. *They contain Alu* sequences in which there are restriction sites for the Alu I restriction enzyme.

A group of roughly 300,000–500,000 copies (5% of DNA) of sequences is found in a human haplotype. The mentioned sequences have a dimeric character, they contain two successively similar sequences.

## Links

### Related Articles:

- Signální sekvence polypeptidu, volné a vázané ribozómy
- Regulace genové exprese u eukaryot
- Regulace genové exprese u prokaryot
- Transkripční faktory
- Restriktázy

### Reference:

1. LIFTON, R P, M L GOLDBERG a R W KARP, et al. The organization of the histone genes in *Drosophila melanogaster*: functional and evolutionary implications. *Cold Spring Harb Symp Quant Biol* [online]. 1978, vol. 42 Pt 2, s. 1047-51, dostupné také z <<https://www.ncbi.nlm.nih.gov/pubmed/98262>>. ISSN 0091-7451.
2. ↑ PRIBNOW, D. Nucleotide sequence of an RNA polymerase binding site at an early T7 promoter. *Proc Natl Acad Sci U S A* [online]. 1975, vol. 72, no. 3, s. 784-8, dostupné také z <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC432404/?tool=pubmed>>. ISSN 0027-8424.
3. OTOVA, Berta. *Medical biology and genetics: 2nd volume*. Prague 2008 edition. Karolinum Publishing House, 2008. ISBN 978-80-246-1594-3

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