

1 Sequence Motif Analysis

1.1 What is sequence motif?

Transcription regulation in prokaryote VS. Transcription regulation in Eukaryote

- Prokaryotes: Simple, rapid regulation, mainly at the level of transcription initiation, with a focus on immediate environmental response.
- Eukaryotes: Complex, multilayered regulation involving chromatin modifications, transcription factors, and various RNA processing events. Transcription regulation is slower but allows for more fine-tuned control of gene expression.

Binding Motif

A binding motif refers to a specific sequence or structure in DNA, RNA, or proteins that is recognized and bound by a particular molecule, usually a protein such as a transcription factor. In the context of DNA-binding proteins, the motif typically refers to the sequence of nucleotides or the structural features that the protein binds to regulate gene expression or perform other functions.

- DNA-binding Motif
- Rna-binding Motif
- protein-binding motif

1.2 Why is motif important?

1.3 Motif Analysis

1.4 Mixture model