

In [molecular biology](#), a **transcription factor (TF)** (or **sequence-specific DNA-binding factor**) is a [protein](#) that controls the rate of [transcription](#) of [genetic](#) information from [DNA](#) to [messenger RNA](#), by binding to a specific [DNA sequence](#)

The function of TFs is to regulate—turn on and off—genes in order to make sure that they are [expressed](#) in the right cell at the right time and in the right amount throughout the life of the cell and the organism

DBDs attach to specific DNA sequences that are upstream to a regulated gene. This specific region is called a **promoter**.

The transactivation domain (**TAD**) is where other proteins (co-regulatory proteins) bind to the transcription factor.

A third element is sometimes present and called a signal-sensing domain (**SSD**). This region, when present, allows signaling molecules to bind the transcription factor.

