

*Transcription and RNA Processing: I am confused about the -10 and -35 consensus sites in bacterial transcription initiation. When we are given a nucleotide sequence of 6 bp, do we compare that to the -35 site or the -10 site if we want to determine relatively how much RNA will be made? And if we are given a nucleotide sequence that is 7 bp long, then which site must we compare it to?*

In general, if you're not told exactly what you're looking for, then as a scientist, you might just compare your new sequence with known sequences and see what "hits" you get. On the other hand, if you're told explicitly that a given sequence was found about 10 bases away from the beginning of transcription in *E. coli*, then you'd examine how closely it matches the -10 site, and determine if it's a strong or weak promoter. And the length of the sequence is largely irrelevant. The consensus sequence is critical, of course, but remember that the DNA is much much longer than just that set of bases. So if your consensus sequence is 5 bases, but the piece of DNA that you're studying is 5000, you can still look for that 5 base pair sequence within your molecule.

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