

Systems Biology BME 105 (Spring 2007)

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1. [2 marks] Transcription factors function at what stage of the RNA transcription process?

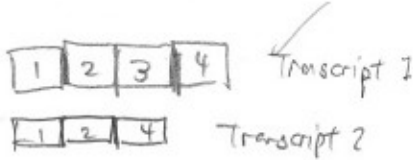
RNA strand elongation stage

2. [3 marks] Show the gene structure of a 4 exon gene in which the 3rd exon is alternatively spliced in a tissue-specific manner. Label the different parts of the gene. Draw both transcripts. In both transcripts, the 4th exon encodes the same amino acid sequence. What does this tell you about the alternatively spliced 3rd exon?



gene sequence
specific repressors/
binding sites (ie. loxP sequence to remove exon 3)

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} exon 3 may be spliced out in one form of transcript.

The 3rd exon does not affect the 4th exon - they are separate, and the gene sequence encoded in exon 3 does not bind to any repressors/promoters for exon 4.