CRC for Premium Quality Wool

Development of Genes for Keratin Transgenesis

Produced for the CRC for Premium Quality Wool undergraduate program by;
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How much of the flanking DNA region is required ?

- Gene expression relies upon DNA sequences outside the protein-coding region.
  - Testing of gene constructs in...
    - cell culture
    - via mouse transgenesis
  - Approach : progressively delete flanking DNA until gene expression is lost or becomes non-specific.

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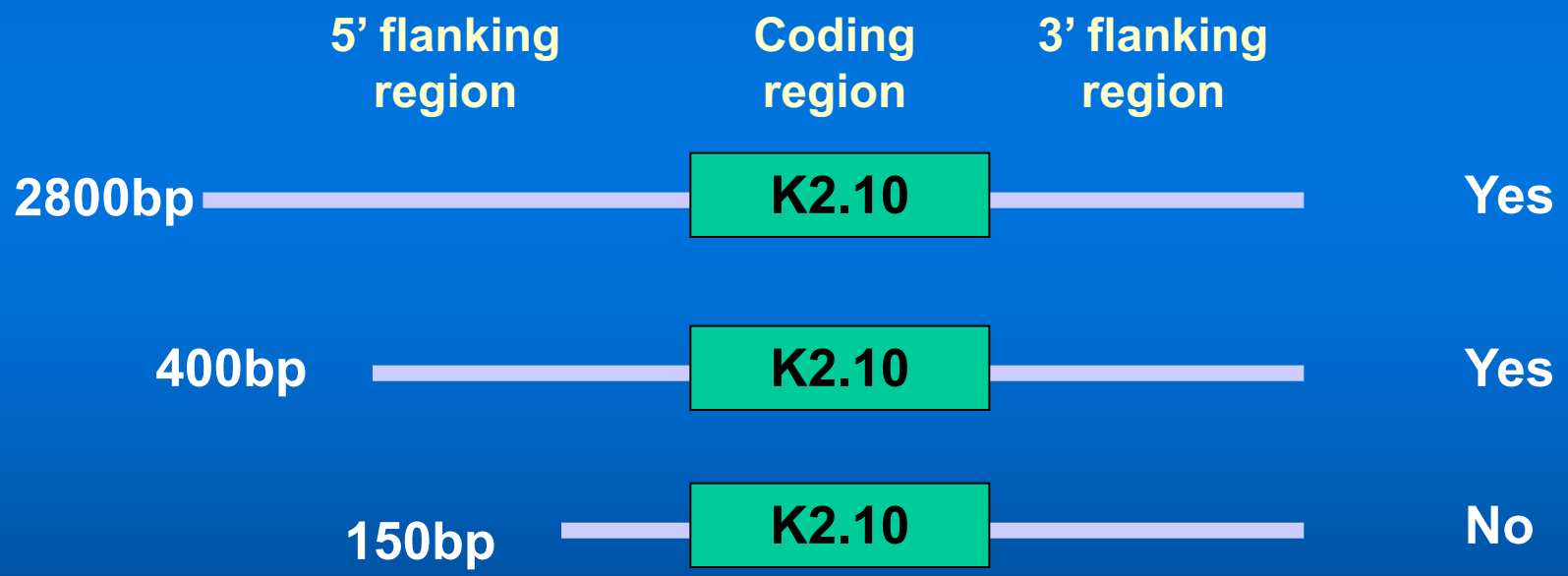
Determining the region of control of transgene expression

- Sequential deletion of 5’ flanking region



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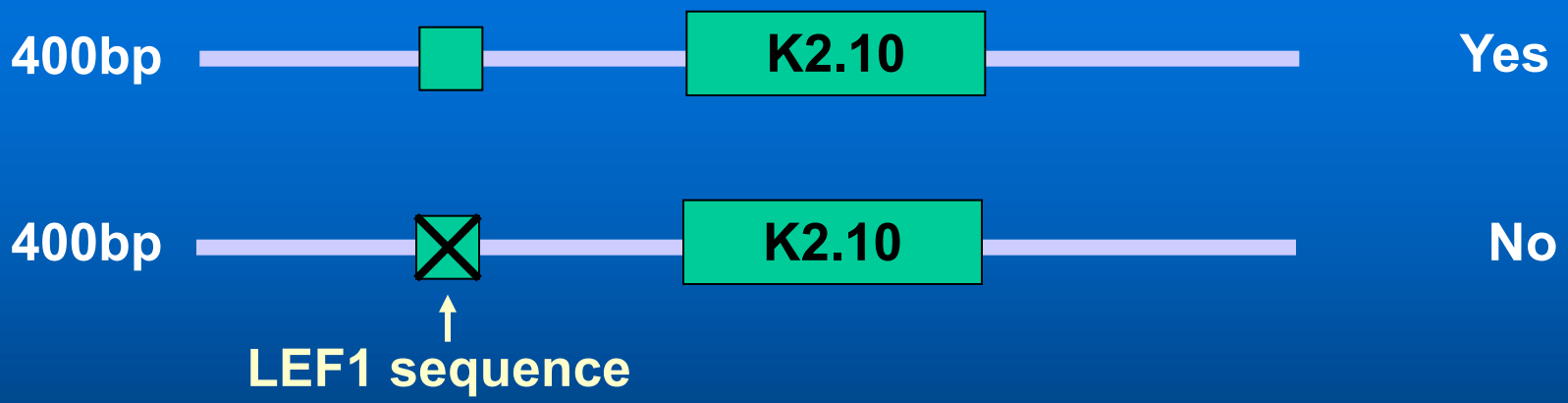
Identification of the sequences that are critical for correct gene expression

- Approach : Mutate specific DNA sequences one at a time or in combination and test gene expression level.
- Example : Transgenesis in mice after mutation of the LEF-1 sequence in the K2.10 gene promoter.



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The effect on fibre properties if extra copies of active follicle keratin genes are present.

- **Mouse transgenesis with the K2.10 gene.**
  - **Transgenic mouse produces hair which is brittle and breaks easily**

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