From Genes to Proteins

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Reading Frame

- The genetic code is read in stepwise groups of three nucleotides.
- The reading frame is set by the Translation Initiation codon and is read in three’s until the Translation Termination or Stop codon.
Gene structure

- Translation Initiation and Termination Codons
  - define the boundaries of the gene
- Eukaryotes
  - exons - coding regions of the gene
  - introns - non-coding regions that are spliced out at the RNA level

ATG (Translation Initiation Codon)

Promoter

TIS

INTRONS

(Stop codons)

TTS

TGA

TAG

TAA
Transcription of a gene to pre-mRNA

Promoter

ATG (Translation Initiation Codon)

mRNA

TIS

TTS

TGA

TAG

TAA

Stop codons

Transcription

Phil Vercoe

www.woolwise.com
From the gene to the protein

DNA

DNA Polymerase → Transcription

pre-mRNA

RNA Polymerase → Splicing

mRNA

Translation (Ribosome) → Protein