Understanding FGL's Proprietary Genetic Control Elements

Promoter

A segment of DNA that causes genes to become active. Promoters serve as a binding site for the enzyme RNA polymerase, which performs the first step of transcribing DNA in the adjacent gene.

Enhancer Element

A segment of DNA that influences the activity of promoters by serving as a binding site for specific proteins. Enhancers may be physically separated from the promoter, but still influence it. Duplicating enhancers or modifying their DNA sequences can dramatically alter activity.

Gene

A heritable sequence of DNA that determines a particular characteristic in an organism. A gene may code for a wide range of functions. Most commonly, proteins are produced.

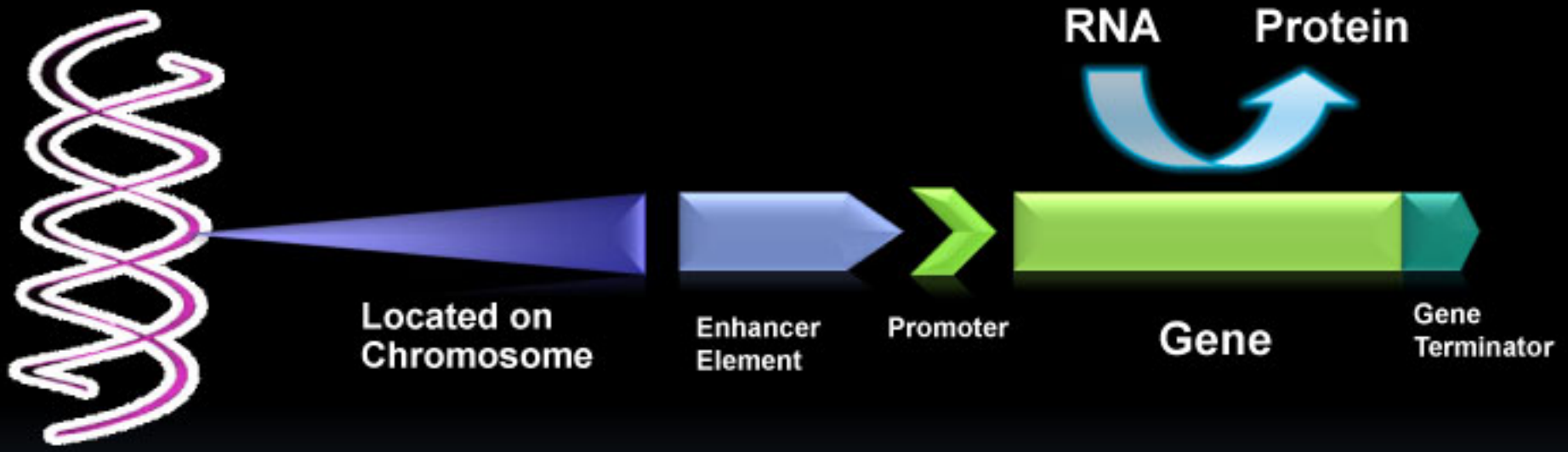
Gene Terminator

A segment of DNA that signals the end of a gene. Terminators serve to stop transcription by detaching RNA polymerase.

RNA to Protein

Also known as *"transcription"* and *"translation"*. RNA polymerase binds at the promoter and moves along the DNA strand, *transcribing* the sequence into Messenger RNA. When the terminator is reached, mRNA detaches and is *translated* into a protein, the structure of which is dictated by the original DNA sequence.

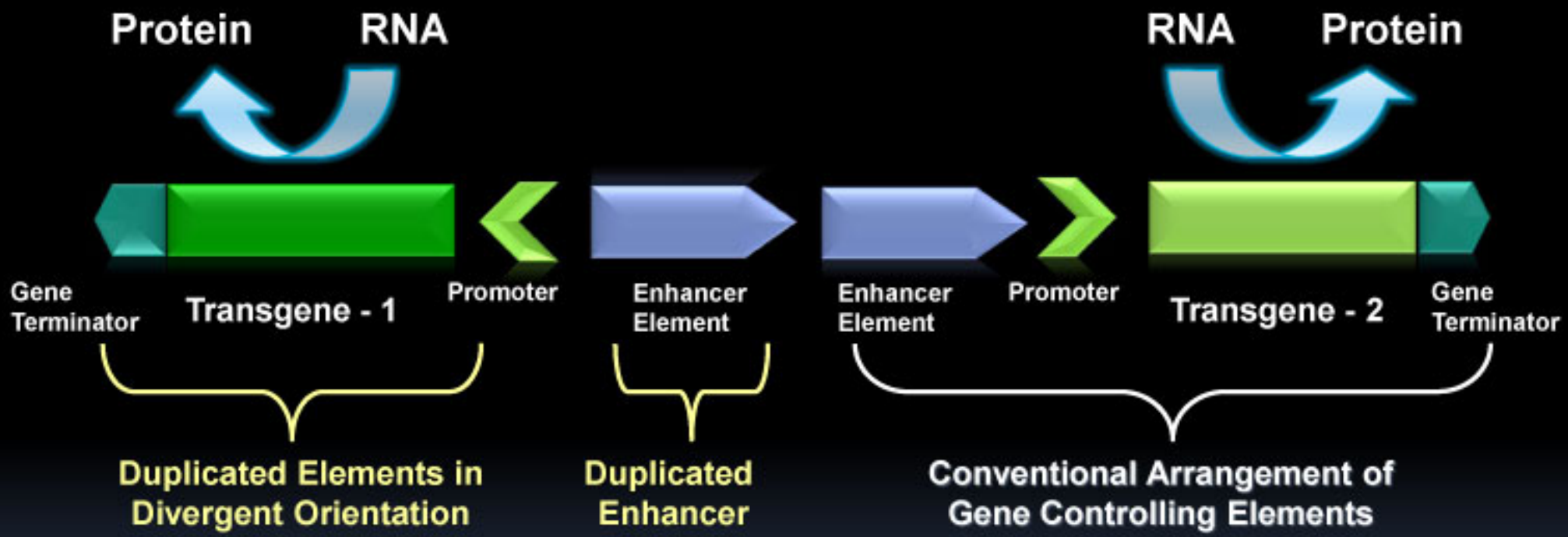
A Conventional Genetic Control Element



Chromosome
(Double-Stranded DNA)

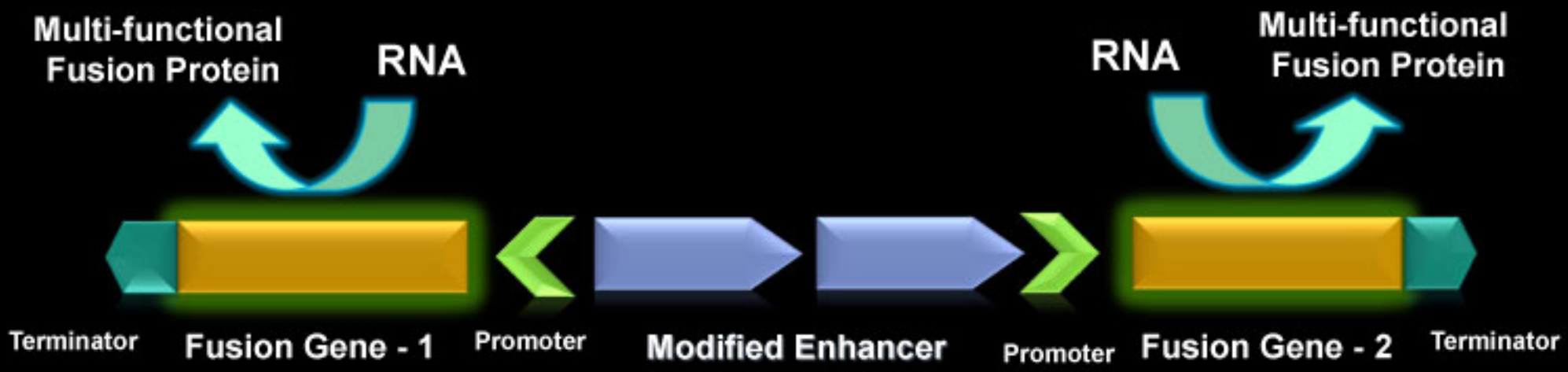
Bidirectional Dual Promoter Complex

US Patent # 7,129,343 2006



The patented BDPC is a *new way to arrange* Genetic Control Elements. The BDPC provides more efficient control of genes and results in better protein production.

The Bidirectional Dual Promoter Complex Combined with Fusion Gene Technology



The BDPC combined with Fusion Gene Technology facilitates coordinated activation of multiple genes for the production of highly regulated fusion proteins. Our fusion proteins are designed to perform multiple functions in the target organism. This proprietary technology already has been demonstrated for use in crop improvement. Applications for biomass and biofuel technology are anticipated.