

Gene Explorer

1.4

DNA: Promoter Terminator

10 20 30 40 50 60 70 80 90 100 110 120

5' -CAAGGCTATAACCGAGATTGATGCCTTGTGCGATAAGGTGTGTCCCCCCCCAAAGTGTTCGGATGTCGAGTGCAGCGTGC|AAAAAAAAACAAAGGCGAGGACCTTAAGAAGGTGTGAGGGGGCGCTCGAT-3'

3' -GTTCCGATATTGGCTCTAACTACGGAACACGCTATTCCACACAGGGGGGGTTTCACAGCTACAGCTACGCGCACG|TTTTTTTTTGTTCCTCCTGGAATCTTCCACACTCCCCCGGAGCTA-5'

pre-mRNA: Exon Intron

5' -CCGAGAUUGAUGCCUUGUGCGAUAAGGUGUGUCCCCCCCCAAAGUGUCGGAUGUCGAGUGCGGUGC|AAAAAAAAACAAAGGCGAGGACCUUAAGAAGGUGUGA-3'

mature-mRNA and Protein (previous):

5' -CCGAGAUUGAUGCCUUGUGCGGAUGUCGAGCGAGGACCUUAAGAAGGUGUGAAAAAAAAAAAA-3'

N-MetProLeuSerAspValGluArgGlyPro-C

Selected Base = 78

Click a base of the upper strand of the DNA molecule to highlight the corresponding regions of the RNAs and the polypeptide. What are the base numbers of the first and last Cytocine in the string of 8? _____

What are the base numbers of the string of 9 Adenines in? _____

What is the number of the first base of the “start” sequence _____ and what is its entire codon? _____ (These = my birthday, BTW.)

Using the original strand shown above as a basis of comparison, make changes (by clicking the “Enter New DNA Sequence” button) to a single base in the DNA strand and report the results after each change.

EXPERIMENTS (predict the outcome before taking each step.)

1. Change any base between bases 55 and 67 to its complement.
2. Change the very next base.
3. Change the next base after than one.
4. Reset, then change any base between bases 72 and 85.
5. Delete the base you changed in the previous operation.
6. Delete the base after the one just deleted.
7. Propose and execute a change in a different region. (Reset first?)
8. Propose and execute another change. (Reset first?)

x	Base no.	DNA shift	codon shift	detail any affect on the polypeptide chain
1		_____	_____	
2		_____	_____	
3		_____	_____	
4		_____	_____	
5		_____	_____	
6		_____	_____	
7		_____	_____	
8		_____	_____	